MAY 6 1927

The Library of
St. Olaf College
Northfield, Minn.

Accession No. 27154

Class 336 Vol.

MUNICIPAL FINANCE

THE MACMILLAN COMPANY
NEW YORK · BOSTON · CHICAGO · DALLAS
ATLANTA · SAN FRANCISCO

MACMILLAN & CO., LIMITED
LONDON · BOMBAY · CALCUTTA
MELBOURNE

THE MACMILLAN CO. OF CANADA, LTD.
TORONTO

MUNICIPAL FINANCE

BY

A. E. BUCK

IN COLLABORATION WITH OTHER STAFF MEMBERS OF THE NATIONAL INSTITUTE OF PUBLIC ADMINISTRATION AND THE NEW YORK BUREAU OF MUNICIPAL RESEARCH

New York

THE MACMILLAN COMPANY

1926

All rights reserved

HJ9105
.B8

COPYRIGHT, 1926,
BY THE NATIONAL INSTITUTE OF PUBLIC ADMINISTRATION

Set up and printed.
Published, November, 1926.

Printed in the United States of America by
J. J. LITTLE AND IVES COMPANY, NEW YORK

PREFACE

Within the last few years several valuable treatises have been written on public finance. These books usually cover the theory and general aspects of the subject and only incidentally touch on financial organization and administration. They give little or no space to financial methods and procedure in city governments. These are treated, if at all, in special books, reports, and periodicals. There is no comprehensive, single treatment of public finance as applied to city governments. And yet the financing of such governments has become extremely important because of the rapid growth of cities and the wide expansion of municipal activities.

The present volume is intended to give a comprehensive treatment of this neglected subject. It attempts to present the various elements of the subject in a synthetic manner, as related to one another and to the whole field of finance. The approach is from the pragmatic point of view, emphasis being placed on practical and efficient financial administration. The method of treatment is empirical; theory is reduced to a minimum. The criteria used are based on experience and practice. The aim is frankly to outline a financial system which city governments may adopt and use. Many city authorities, no doubt, will find that they cannot install this system in its entirety on account of state laws and local conditions. For them it represents an ideal toward which they may work.

This book is not to be regarded as an exhaustive treatment of municipal finance. It merely lays out the broad outlines of the subject. A volume, in fact, might be writ-

ten on each chapter which this book contains. For this reason, it has not been an easy matter to determine what should be included and what should be left out. We hope, however, to have succeeded in setting forth, at least, the most essential things in the field of municipal finance.

The work of the New York Bureau of Municipal Research in city finance forms the background of this book. For a period of twenty years this organization has given special attention to financial administration and methods in city governments. It has conducted more than a hundred surveys of city governments scattered throughout this country and Canada and has assisted in many instances in the complete overhauling of the financial systems of these governments. From this experience much of the material of this book has been drawn.

While this book has been written mainly for city administrators, councilmen, financial officers, and those interested in the practical side of municipal finance, it is hoped that it will be serviceable to teachers and students. As an aid to students and those wishing to make a more exhaustive study of the various phases of municipal finance, we have appended a selected bibliography of books, reports, and periodicals bearing on the subject matter of each chapter.

The writing of this volume has not been an easy task. If broth is often spoiled by too many cooks, what may five authors do to a single book? We dare not say. Should the reader have any serious complaints to make, he will find the names of the authors listed in the table of contents in connection with the several chapters and can thus distribute his criticism according to their respective merits.

Our appreciation and thanks are due to certain people outside our own staff, who have given us advice and help in the preparation of this volume. Mr. Francis Oakey has read the chapters on accounting and offered

a number of helpful suggestions. Dr. John Bauer has read the chapter on financing municipally owned utilities; his wide knowledge of public utilities has saved us several slips. Dr. Charles A. Beard has read the entire manuscript. We are indebted to him for sound advice and critical and constructive suggestions far more than we can express by a mere mention of his name in this preface. Mrs. Philip H. Cornick has given us valuable assistance both in proof reading and in making the index.

A. E. Buck.

New York City.
October, 1926.

CONTENTS

CHAPTER		PAGE
I.	The Significance of Municipal Finance *A. E. Buck*	1
II.	Organization of Financial Administration *A. E. Buck*	8
III.	The Budget and Budget Making *A. E. Buck*	31
IV.	Budgetary and Auditing Control *A. E. Buck and William Watson* . . .	101
V.	General Accounting and Reporting *William Watson*	143
VI.	Cost Accounting *A. E. Buck and William Watson* . . .	193
VII.	Graphic Statistics in Municipal Finance *A. E. Buck and Edward M. Martin* . .	218
VIII.	Employment and Pensions *A. E. Buck*	245
IX.	Purchasing *A. E. Buck*	266
X.	Treasury Management *Philip H. Cornick and William Watson* .	287
XI.	Assessment of Property for Taxation *Philip H. Cornick*	306
XII.	Special Assessments *Philip H. Cornick*	384
XIII.	Miscellaneous City Revenues *Philip H. Cornick and Luther Gulick* .	440

CHAPTER PAGE

XIV. Debt Administration
Luther Gulick 470

XV. Financing Municipally Owned Utilities
A. E. Buck 510

Selected Bibliography 545

Index 551

LIST OF FIGURES

FIGURE		PAGE
1.	*Pro Forma* General Budget Summary . . .	37
2.	Budget Estimate Form—Personal Services .	79
3.	Budget Estimate Form—Other than Personal Services	81
4.	Budget Estimate Form—Recapitulation . .	83
5.	Consolidated Statement of Fund Resources and Obligations	152
6.	Condensed Balance Sheet of a Municipally Owned Utility	179
7.	Condensed Operation Statement of a Municipally Owned Utility	180
8.	Form for Register of Approved Claims . . .	186
9.	Form for Summary Cost Statement	212
10.	Summary Cost Sheet for Cost Accounts . . .	214
11.	Detailed Cost Sheet for Cost Accounts . . .	216
12.	A Simple Bar Chart	230
13.	A Curve or Line Chart	232
14.	A Curve or Line Chart, Showing Totals Cumulatively	234
15.	A Ratio or Logarithmic Chart	236
16.	Comparisons by Line, Area and Volume . .	239
17.	An Organization Chart of a City Government	243
18.	Chart of Centralized Purchasing Procedure for City Governments	273

FIGURE PAGE

19. Reproduction of Page from Block and Lot Map, Newark, N. J. 331

20. Reproduction of Building Record Sheet, Buffalo, N. Y. 339

21. Illustration of Need for a Depth Curve . . . 345

22. Reproduction from Page of Tentative Land Value Map of New York City for 1926 . . 355

23. The Bernard Corner Rule 361

24. Area of Benefit Established in New York City in a Proceeding to Open a New Street . . 410

25. Area of Benefit Established in New York City in a Proceeding to Acquire a Public Playground 411

26. Hypothetical Case Illustrating Two Methods of Establishing Limits for Zones of Local Benefit 414

27. Area of Benefit Established in New York City for a Group of Street Openings 425

MUNICIPAL FINANCE

ST. OLAF COLLEGE LIBRARY,
NORTHFIELD, MINN.
27154

MUNICIPAL FINANCE

CHAPTER I

THE SIGNIFICANCE OF MUNICIPAL FINANCE

The process of raising and spending money is vital to the operation and development of government. Only a few decades ago this process was comparatively simple. The sources from which money was secured for governmental purposes were few. The functions of government were limited in number and their fiscal requirements were small. But today these conditions have vastly changed, more especially in the case of municipal government. Within the past twenty-five years, our cities have not only grown more rapidly than ever before,[1] but their activities have become widely diversified.

This is largely the outcome of the present industrial age. Most of our great industries are located in or near cities. Population is daily drifting to the cities to supply the necessary labor to operate these industries. In order to meet the conditions growing out of this situation, city governments, especially the larger ones, have been compelled to extend the functions already established and to undertake many new functions. So that today, the activities of any large city are infinitely more varied and complex than those of any private business or corporation.

Because of these things the financing of city govern-

[1] In 1900 there were 135 cities of 30,000 or more inhabitants with an aggregate population of 19,050,821; in 1923 there were 248 such cities with a total population of 39,172,168.

ments is no longer a simple matter. City administrators and practical men are generally aware that the fiscal policies involved in the raising and spending of municipal funds demand greater attention and more careful consideration than ever before. They understand that the financial practices of a few years ago are more or less obsolete under present conditions and that new methods are required to meet the complex situations which are constantly arising in connection with city finances.

The Financial Demands of Municipal Business

The financial demands of municipal business have already assumed tremendous proportions. To carry on the activities of the hundreds of American cities [1] requires the annual expenditure of large sums of money; in fact, the amounts so appropriated range from a few thousands of dollars in the small city to millions of dollars in the large city. Cities of thirty thousand or more population spent during 1923 a little over two billions of dollars as against slightly more than half a billion dollars twenty years before.[2] Although we have no compilation of the total amount of municipal expenditures subsequent to 1923, there is every indication that the amount has increased rapidly since that time.[3] New York City alone provided in its 1926 budget for an expenditure of $437,000,000. This budget is larger than that of any other government—city, county, or state—in this country, and it is approximately one-eighth of the annual budget of the national government. These figures

[1] There are over 1,300 cities with a population of 5,000 or more.

[2] United States Census Bureau, *Financial Statistics of Cities for 1923*, p. 120. Cities with populations of 25,000 or more were included in the earlier statistics.

[3] A compilation made by the National Industrial Conference Board of the expenditures of local governments—cities, counties, towns, and districts—during 1923 shows a total of $5,136,000,000. The total expenditures for 1923 of all governments in the country is estimated at $10,045,000,000, or a per capita of $90. See *Tax Burdens and Public Expenditures*, p. 34.

of city expenditures and their comparison with expenditures of other governments should give us some idea of the magnitude and importance of the municipal business carried on in the United States.

The huge amount of money required annually for the support of municipal governments is secured from various sources, such as taxes, licenses, permits, special assessments, and borrowings. The major portion, however, comes from general property taxes. Many perplexing questions are connected with the raising of this money from the sources indicated. This is apparent when one examines the complex constitutional and statutory provisions of many states, which seek in one way or another to control or to set limits on the fiscal powers of municipalities. An example of these is the debt limitations imposed upon cities. Notwithstanding such limitations, city expenditures are being financed on a rapidly increasing scale from borrowings. The gross indebtedness at the close of 1924 of cities with thirty thousand or more population was over six billions of dollars, an increase of more than 100 per cent in ten years.[1] City governments are not only placing heavy burdens upon the taxpayers to meet their current expenditures, but they are going into the money markets and competing with private business for capital to carry on their work. The latter means, among other things, increased municipal indebtedness and consequently heavier tax burdens in the years to come.

The Development of Municipal Finance as a Science

We have only to take a sweeping glance at the financial experience of American cities during the past fifty or

[1] United States Census Bureau, *Financial Statistics of Cities, 1924* (Preliminary report), p. 2. The gross indebtedness of cities under thirty thousand population together with the increase during 1925 is estimated at an additional two billions of dollars, so that the total gross indebtedness of cities at the close of 1925 is about $8,000,000,000.

sixty years to be convinced that much has been done recently to protect the municipal taxpayers and to systematize the financial administration of city governments. In the years immediately following the Civil War the treasuries of several of our largest cities were plundered by political rings. One of the most notable of these was the Tweed ring in New York City. Tweed and his supporters drew out of the city treasury more than $8,000,000 to build a county courthouse which was estimated to cost $250,000. They trebled the bonded debt of the city in two and one-half years by adding about $81,000,000 to it. The city comptroller, under the direction of Tweed, fraudulently paid out enormous sums of money under the specious title of "general purposes." In 1871 Tweed's operations became so high-handed that he was exposed and arrested on the charge of having stolen $6,000,000 of the taxpayers' money. He was convicted and sent to prison.

Another notable example was the Philadelphia gas ring which looted the city treasury for many years after the Civil War before it was finally exposed and broken up in the early eighties. It added enormously to the city's bonded indebtedness and pushed the tax rate up until in 1881 the taxes consumed between one-fourth and one-third of the total income accruing to the owners of the taxable property.[1] City officials, members of the ring, were paid fees and not fixed salaries. Many of them received enormous sums from fees; for example, the collector of delinquent taxes received nearly $200,000 a year. Others received large commissions on contracts which they gave out for public works projects. During this period smaller cities all over the country had similar experiences, although not so startling from the standpoint of public plunder.

After these rings were broken up, grafters resorted to

[1] See James Bryce, *American Commonwealth*, Vol. II, Chap. LXXXIX.

various subterfuges to get money from the city treasuries. In nearly every city there were "padded" payrolls. For example, in a New Jersey city, "H. Bell" was the unchallenged entry on the payroll for several years. It finally developed that H. Bell was a horse which the foreman carried on the payroll as a salaried employee and pocketed the wages. In many cities bills were paid for goods which were never delivered. Now and then large sums of money disappeared from city treasuries and were never recovered because of inadequate accounting records. These abuses still occur in some cities, although they are not so flagrant as they were a few years ago. On the whole, however, the last twenty-five years have seen a great change in the financial organization, methods and procedure of city governments. Nothing short of a revolution could carry us back to "the good old days."

The new forms of city government which have developed during recent years—the commission, the manager, and the centralized-mayor forms—have done much to focus attention on financial administration and to simplify and systematize financial organization. They have encouraged the invention and application of scientific financial methods and procedure. As a result, there have been marked developments in the financial field within the last ten or fifteen years. Among the more important of these are budget planning, centralized purchasing, employment supervision, improved accounting and reporting, effective control of municipal funds, equitable assessments, and better debt administration.

City authorities have not labored alone in developing better financial methods. In many states they have received assistance from state authorities in meeting their financial problems. Laws have recently been enacted in a number of states providing for state supervision of certain phases of municipal finance. This supervision includes, among other things, the audit of city accounts,

the regulation of municipal bond issues, the installation of proper accounting systems, the review of municipal budgets, and assistance in the assessment of property for taxation.

In many cities the authorities have received aid from private or semiprivate organizations, such as bureaus of municipal research. The staff specialists of these organizations have recommended financial devices based upon the best practices and adjusted to the needs of the particular city. They have actually installed financial records and supervised the carrying out of financial procedure in a number of cities. This work has undoubtedly contributed much to the recent development of scientific financial methods and their application in municipalities.

Briefly, this is the story of financial administration in city governments during half a century. The significant thing about it is that through the process of trial and error there are gradually being evolved the methods and technique of a science—the science of municipal finance. Even now the scope of this science is fairly well defined; it includes those functions of the city government which are concerned primarily with the raising and spending of money. Such functions comprehend budget making, auditing, accounting and reporting, assessing property for taxes, collecting taxes and other revenues, keeping and managing funds, purchasing services and commodities, borrowing money, and retiring bonds. A synthetic treatment of these functions constitutes the groundwork of the science of municipal finance.

This science enables the city council to discharge its functions of appropriation and fiscal control with precision. It makes possible businesslike management by the city executive. It gives in monetary terms a picture of all the municipal operations carried on under his supervision. It presents the information necessary to determine the costs of projected policies. Without its

aid intelligent planning, effective direction, and administrative responsibility cannot be attained.

Moreover, this science is not just a technical instrument for the use of municipal officials; it is a powerful aid to citizens. In practical operation it enables the taxpayers to discover how much money is being raised for the support of the city government and where every dollar of it goes in detail. Through the application of such a science municipal policies may be reduced to exact mathematical terms and those made responsible for carrying out such policies held to strict accounting in the same terms.

The further development and application of the science of municipal finance promises to work a greater change than has yet been wrought in the organization and management of city governments. This science offers the means for the projection of great municipal undertakings and probabilities and at the same time it opens the way to the realization of official responsibility—the two major problems of democratic government in American cities. Such, indeed, is the grand prospect of the science of municipal finance.

CHAPTER II

ORGANIZATION OF FINANCIAL ADMINISTRATION

Financial administration—in fact, all governmental administration—presupposes the establishment of certain agencies to give force and direction to its methods and procedure. As to the success of the administration, much depends upon the organization of these agencies. The manner of constituting such agencies, the relationship that exists between them, and the means for responsible direction in carrying on their work are of vital importance. Whether or not a city government handles its fiscal affairs in a businesslike manner, protecting municipal funds and public interests, and at the same time dispensing with red tape, undue delay in the payment of bills, and similar annoyances to private individuals and concerns who deal with it, depends in a large measure on its financial organization. No argument is needed to demonstrate this.

Evolution of Financial Organization in Cities

A brief survey of the development of fiscal agencies in city governments is essential to a general understanding of financial organization as it exists today. Such a survey also points the way to future developments in this field.

Twenty-five or thirty years ago very little attention had been given to either the general framework or the organization of the fiscal agencies of city governments. Each city government usually had several officials admin-

istering its financial affairs, the more important of these being the city treasurer, the auditor or controller, the city collector, and the assessor or board of assessors. The methods of selecting these officers were generally such as to give each one an independent status in the city administration. There was little or no general supervision by the mayor over the fiscal officers or their methods and procedure. Numerous checks and counterchecks were established with the hope of preventing dishonesty in the use of city funds. City governments generally were without businesslike organizations to handle one of their most important major functions—the financing of their work.

The introduction of the commission form of government in 1901 stimulated the reorganization of the financial administration of cities. Under this form the financial functions were recognized as being important enough to be departmentalized. The result was the establishment of a department of finance, headed by one of the five commissioners. Within this department were placed the collecting office, the treasury, the accounting office, the assessing office, and sometimes the auditing office. In some instances, however, the auditing office was placed under an officer directly responsible to all the commissioners. Later, when centralized purchasing and budget procedure were developed, these were also added to the functions of the department of finance.

The manager form of government, developed in 1913 and subsequently, gave greater emphasis even than the commission form to financial administration. Not only was the department of finance retained under the manager form, but it was better organized and placed in a more commanding position in the general scheme of administration. In fact, it became the manager's strong arm in directing the city's business. Through the information furnished by this department he was able to exer-

cise day-to-day supervision over all the activities of the city government. He depended upon this department to enforce all financial regulations, to gather all the facts necessary for budget making, to prepare the budget for his approval and presentation to the council, and to enforce the budget plan when adopted.

Numerous cities, however, did not adopt either the commission or the manager form of government. In many of these cities the administrative agencies were departmentalized and placed under the control of the mayor. A department of finance was established in many instances as an essential part of this control. This arrangement placed the mayor in much the same position as the manager in directing the fiscal affairs of the city government.

Such have been the general lines along which financial organization has developed in American cities. We may now ask: What are the present types of organization for the management of municipal finance and what is the tendency looking toward the future development of financial organization in city governments?

Present Types of Financial Organization

An examination of the financial structure of municipal governments reveals two general types of organization, namely, decentralized and centralized. Under the decentralized type, the financial functions of the city government are vested in a number of separate agencies each charged with duties varying in character and importance and all of them possessing different degrees of autonomous power. Under the centralized type, practically all the offices and divisions charged with financial functions are brought under the control of a single municipal authority and they are usually consolidated into one branch or department of the city administration. We shall now discuss briefly these two types.

Decentralized Financial Organization

In practice the degree of concentration of power attained under each of the above types of financial organization varies from city to city. On this basis the cities having the decentralized type may be classified into three groups: (1) those cities in which the separate fiscal agencies are virtually independent of one another and operate under laws generally and specifically applicable to them; (2) those cities in which such independent agencies are under board supervision; and (3) those cities in which such agencies are under executive supervision.

An illustration of the kind of decentralized financial administration obtaining in the first of these three groups of cities is to be found in San Francisco. Although the city and county governments have been combined in this municipality, there are five elective officers, namely, the mayor, the auditor, the treasurer, the tax collector, and the assessor, who are closely concerned with the administration of the financial operations of the city government. Besides these independent officers, the elective board of supervisors exercises through its committees certain supervisory powers over the city's financial administration.

In the second group of cities are to be found those municipalities whose financial agencies are decentralized, but are subjected to general fiscal and budgetary control through boards of estimate, or estimate and apportionment. These boards are usually composed of the mayor, the more important elective officials and department heads, and representatives of the city council. They vary in size from three to twelve members.

Notable examples of cities having such boards are New York, St. Louis, Baltimore and Milwaukee. The board of estimate and apportionment of New York City is somewhat different from the boards of the other cities. It is

composed of the mayor, the comptroller, the president of the board of aldermen, and the five borough presidents, all of whom are elective, the first three being elected from the city at large.

In the third group of cities in which the financial functions are vested in several independent agencies, the chief executive has been given general supervision over these functions under the charter provisions. This is the case in some of the mayor-council and manager cities; for example, Philadelphia and Norfolk.

In Philadelphia the city comptroller, the city treasurer, and the receiver of taxes are elective for a term of four years just as the mayor is, and each one heads a separate fiscal department of the city government. The only strictly fiscal officer who is directly responsible to the mayor is the city purchasing agent. However, the mayor is empowered to prepare the city budget for the council. He may, at any time, demand information about the city's business from any officer and he may require an audit to be made of any office. Thus, he is placed in a position to exercise considerable supervision over the finances of the city government,—the amount depending upon his personal influence over the independent fiscal officers and over the city council.

The charter of Norfolk, Virginia, sets up a department of finance which includes the city treasurer and the commissioner of revenue, both elective officers, the city auditor appointed by the council, the city purchasing agent appointed by the manager, and the three sinking fund commissioners appointed by the council. While the charter provides that the manager shall have "direct supervision" over this department and over the general financial administration of the city, in reality, he may be so curtailed by the independent officers under the department that he can at best exercise only nominal control over the city's finances. Only in the preparation

of the budget for the council does he have an opportunity to exercise any real fiscal authority. This criticism of the Norfolk charter, however, does not apply in general to the financial organization of the manager-governed cities.

Centralized Financial Organization

Cities having their financial administration largely centralized also fall into three groups according to the degree of concentration attained. In the cities belonging to the first of these groups, the financial functions are consolidated in one department, but the head of this department is virtually independent of the other administrative departments and without any general executive supervision. This kind of centralized financial administration is generally found in commission-governed cities.

A good example of this group is Buffalo, the largest city in the country with commission government. In this city practically all of the financial activities are centralized in the department of finance and accounts. The head of this department is the commissioner of finance and accounts, a member of the commission council. He is the chief fiscal officer of the city. The department is divided into a general office, a bureau of accounting, a bureau of the treasury, a bureau of assessment, and a bureau of audit. From the general office the commissioner directs the administration of the city's fiscal affairs, prepares the city budget, and together with the mayor issues city bonds upon the direction of the commission council. The bureau of accounting keeps the general accounts of the city and exercises accounting control over all payments from city funds. The work of this bureau is divided into a bond division, a warrant division, an accounting division, and a filing division. The bureau of the treasury receives all payments of city taxes and other municipal revenues. It does not handle sinking

fund accumulations, these being kept in the custody of the bureau of accounting. It pays all warrants drawn upon the treasury, has the custody of the police, fire and teachers' pension funds, and contracts with depositories for the safekeeping of the city's moneys. The bureau of assessment fixes the value for taxation of all real and personal property in the city, spreads the taxes according to the rate fixed by the commission council, distributes the tax bills to owners of property, and keeps a record of unpaid taxes. The bureau of audit checks all claims against the city before they are paid.

The second group is represented by those cities that have centralized the financial control in the chief executive but have not consolidated their fiscal activities into a single department. An example of this group is Boston, a city having the strong mayor plan of government. Under the mayor of this city there are eight separate financial departments, namely, those of the city auditor, the city collector, the city treasurer, the budget commissioner, the superintendent of supplies, the superintendent of printing, the board of assessors, and the board of commissioners of sinking funds. There is no fiscal officer of the city government independent of the mayor. But the governor of the state appoints a finance commission whose duty it is to investigate the methods of administration and matters relating to appropriations, loans, expenditures, and accounts of Boston and of Suffolk County, and to report to the mayor, the city council, the governor, and the legislature. However, the mayor has practically complete control over financial planning. He originates all expenditure proposals, and the council can only reduce his proposals in which case he has the power of veto over the reduction.

The financial organization of Detroit, another city with the strong mayor plan of government, resembles somewhat that of Boston. There the separate financial

offices of the controller, the commissioner of purchases and supplies, and the board of assessors are under the mayor. The only fiscal officer of any importance, not responsible to the mayor, is the city treasurer who is elected by the people. This fact, however, does not seriously hinder the mayor in his control of the financial administration of the city government. He has power under the city charter to formulate the city budget, the actual work of compilation being done by a budget bureau in the controller's office. But the city council has wider budgetary powers than in Boston; it may revise the mayor's budget in any way it sees fit, and it controls all transfers between appropriations during the fiscal year.

The third group includes those cities which have not only centralized financial control in the chief executive, but have consolidated their financial functions in a department under a single head responsible to the chief executive. Under this form of organization the city's financial functions are more or less systematically arranged. Experience shows that this arrangement reduces the cost of personal services and other expenses incidental to carrying on the work, expedites the handling of the city's business, and fixes definite responsibility for action or inaction in all fiscal affairs. Toledo and Cleveland are examples of this form of financial organization.

From an organization standpoint, Toledo, Ohio, is one of the best examples in the country of the centralized mayor-council form of government. All the administrative departments and offices of the city government are directly responsible to the mayor, and he and his department heads are given the right to sit in the city council without the privilege of voting. The fiscal work of the city is organized under the department of finance, which is headed by the director of finance appointed by the mayor and serving at his pleasure. The director of

finance supervises the keeping of all accounts, the custody of all public moneys, the purchase, storage and distribution of supplies used by the city, the making and collecting of special assessments, the issuance of licenses, the collection of license fees, and the preparation of the budget for the mayor to present to the city council. The department has four divisions, namely, accounts, treasury, assessments and licenses, and purchases and supplies. Each one of these divisions is managed by a commissioner or chief appointed by the director of finance. The head of the division of accounts is the chief accounting officer of the city. There are no accounting or fiscal officers independent of the mayor or the department of finance. Whenever an independent audit of the city's finances is made, the council authorizes it to be done by certified accountants secured from private firms. This arrangement has the advantage of placing all of the accounting information needed for purposes of budget making and general fiscal control directly under the supervision of the mayor and at the same time further protects the city in the handling of its funds by an independent audit.

Cleveland, the largest manager city in the country, has a department of finance headed by a director appointed by and responsible to the manager. The work of this department covers the administration of the financial affairs of the city, including the preparation of the budget for the manager, the keeping and supervision of all accounts, the custody and disbursement of city moneys, the making and collection of special assessments, the collection of license fees, and the purchase, storage and distribution of supplies needed by the city. Under the department are four main divisions, viz.: (1) accounts, (2) treasury, (3) purchases and supplies, and (4) assessments and licenses. The scope of the work of each of these divisions is indicated by its title. The functions

of the last named division, however, are somewhat more limited than the title would indicate, since the assessment of the real and personal property in Ohio is a county function. Each division has a single head directly responsible to the head of the department. The administration of the city's sinking funds comes under the department of finance, subject to the advice of the head of the department of law and the presiding officer of the city council. The council has the power to provide for an independent audit of the city's finances to be made by certified public accountants.

The Department of Finance

It will be observed from the above sketch of the development of municipal finance in the United States that there is a distinct tendency in the arrangement and control of the financial functions. This tendency is clearly in the direction of both the consolidation of the financial agencies and the centralization of power over their operation. It has largely grown out of the efforts of practical men actually engaged in the management of municipal finance. After all, this is the only way in which any working approximation to an ideal system for administering city finances is to be reached.

What is this approach to the ideal which has the sanction of practical experience? It is the integrated department of finance, a department bringing together the financial functions in an orderly manner and so constituted as to be an essential unit of the municipal administration under the control and supervision of the chief executive of the city government. Experience shows that the establishment and operation of a unified department of finance greatly strengthens the general city administration and increases the effectiveness of executive authority and direction. Such a department tends to eliminate red tape in the handling of the city's business, to

prevent losses through bad management and to curtail extravagant expenditures on the part of the operating departments of the city government.

What then should be the scope and authority of the department of finance and how should it be organized?

The department of finance should have broad powers extending to the administrative supervision and regulation of all the financial functions of the city government. Such functions include accounting and reporting, current auditing, budget making, debt administration, custody of funds, making assessments, levying and collecting taxes and other revenues, purchasing, and printing. These functions readily fall into four groups, namely, (1) control and accounts, (2) treasury, (3) taxation, and (4) purchasing. On the basis of these groups the departmental organization should be set up. In addition, there are the functions of employment or personnel supervision and pension administration. These should be closely associated with the department of finance. In small cities, employment supervision and pensions may well be organized as part of the work of the department of finance. In large cities, it may prove more effective from an administrative standpoint to have a department of employment or personnel, which is coördinate with the department of finance. In any event, it appears that the management of the pension funds should be under the department of finance. This is discussed below more at length.

The department of finance should have a single head appointed by and responsible to the mayor or the manager. This head should be designated by the title of director of finance.[1] He should be regarded as the *chief financial officer* of the city government. The executive

[1] Other titles, such as commissioner of finance, may be used. In any case, the titles of the heads of the major departments should be uniform; that is, director of finance, director of public works, director of public safety, and so on.

and the council should look to him as fiscal adviser in all matters pertaining to the city's finances. He should be completely responsible for the administration of the fiscal affairs of the city government. Of course the routine work of the different bureaus or divisions of the department should be supervised directly by the bureau or division heads. In small cities, where the general direction of the department of finance does not require full time, the head of the department might also act as head of one of the bureaus or divisions.

The internal organization of the department of finance should be set up under bureaus or divisions.[1] These units may be designated as follows: (1) bureau of control and accounts, (2) bureau of the treasury, (3) bureau of taxation, and (4) bureau of purchasing. The heads of these respective bureaus should be given the following titles: (1) controller,[2] (2) treasurer, (3) assessor, and (4) purchasing agent. The bureau heads should be appointed by the head of the department. The number of subordinate officers and the size of the clerical force in each bureau should of course depend upon the amount of work to be done by that bureau. It will often be necessary to have one or more persons attached directly to the head of the department to perform general stenographic and clerical services. Provisions should be made to transfer temporarily clerical workers from one bureau

[1] If it is not necessary to go beyond the first subdivisions in the internal organization of the department, then these subdivisions may be called "divisions." This is the practice in a number of cities and states at the present time. But if it is necessary to subdivide further the divisions, then the major divisions should be called "bureaus" and the subdivisions of the bureaus should then become the "divisions." This is the general practice in the national government, a few states, and several of the large cities.

[2] The word controller is spelled also "comptroller"; the simpler spelling, however, is used throughout this text, except where reference is made to cities that use the other form. In some cities the official who performs the duties of the controller is called the "auditor." It will be noted that uniform titles are not suggested for the bureau heads in the department of finance. The titles here given have a definite connotation and a well-established usage among cities, while no uniform titles have been devised that are at all widely accepted.

to another in order to take care of seasonal fluctuations in the work of the different bureaus.

Something should be said at this point on the general qualifications of the officials who are to conduct the work of the department of finance. Organization alone does not guarantee good financial administration; even more than up-to-date fiscal methods and procedure is required. Such administration demands ability, foresight and experience on the part of the financial officers. Failure fully to appreciate this fact often results in city authorities having to call in financial undertakers to audit their records, bury their past mistakes and defaults, and give them a clean slate for future business transactions. Often we find men of small ability in private affairs running the financial administration of great city governments, spending millions of dollars annually. This is sometimes the result of local political situations, but more often it is due to a lack of appreciation on the part of the public of the importance of financial management in municipal governments.

It has been recognized for some time that administration of certain municipal services requires persons of special training and ability. We would not think of placing any other than a person of experience in school management at the head of the educational work of the city. The direction of the health work of the city is understood to require a person trained in public health and sanitation. It is generally conceded that public works requires a person with training as an engineer; and so it is with many of the other services of the city government. But this is not true of financial administration; no special training or ability seems to be demanded as a prerequisite in the task of raising and spending money to support the city government. Yet, the administration of municipal finance ought to be as much of an art as that of education, health, or public works. Small shopkeep-

ers, real estate agents, pawn brokers, and political bosses —persons without training or experience in either public or private finance—should not be selected to direct the fiscal affairs of the city government. Financial administration in cities should be intrusted only to competent administrators.

Bureau of Control and Accounts

The bureau of control and accounts should keep all general accounts of the city government. It should prescribe all accounts necessary to be kept in the departments and institutions of the city. It should exercise current auditing control over all receipts and expenditures. It should prepare all general financial statements and should compile the data for the budget. The exercise of all these powers should fall directly upon the controller, as head of the bureau of control and accounts, subject only to the general supervision of the director of finance. Under this type of organization, the controller is placed in a somewhat neutral position; that is, he is not directly concerned with the creation of transactions affecting receipts or disbursements. His status is sufficiently independent of the other bureaus of the department of finance and of the other departments of the administration to insure effective auditing control. Yet, his office is a part of the administration, as it should be, since the mayor or the manager must depend upon it to supply the financial information necessary to the operation and management of the city government.

The Independent Audit

The audit performed by the controller is usually designated as the current audit. As applied to expenditures, it is always made prior to the payment of any claim. It is, in other words, a preaudit of expenditures. It extends likewise to a daily checking of all revenues and receipts.

Such an audit is the only valid and proper method of accounting control.[1]

There is, however, another kind of audit,—the independent audit. Since it is generally made periodically, it is often called the periodic audit.[2] This audit is distinguished from the current audit by the fact that it is made after the transactions have been completed and is more in the nature of a review of what has taken place. It is usually performed by an officer or agent of the city council, while the current audit is frequently, and ought always to be, performed by an officer of the city executive. The independent audit does not require the keeping of any accounts. The records and statements in the controller's bureau are all that are necessary in making this audit.

The independent audit may be made by a permanent official, that is, an auditor, appointed by the city council, or it may be made by certified public accountants retained by the council. When made by a regular city auditor, this audit is sometimes more or less continuous; when made by public accountants, it is generally performed annually or whenever there is a change in the administration. Several of the manager cities employ public accountants to make their independent audits. This method seems especially desirable for the smaller cities. In any event, the officer or agent making the independent audit should report directly to the city council and should certify the controller's statements for publication. When the state government provides through one of its departments or offices for an audit of the finances of each city government within its jurisdiction, this may be made to take the place of the independent audit under the direction of the city council, provided it is made annually.

[1] See below, pages 110 ff.
[2] See below, page 141.

Bureau of the Treasury

The main functions of the bureau of the treasury are to collect, keep, and pay out the funds of the city government. Payments from these funds should be made only upon the authority of the controller. This bureau should keep such books and records as are necessary for the recording of all receipts and expenditures, including bond transactions. Of course, a record should be kept of moneys in city depositories. Provisions are usually made for the distribution of city funds among banks upon the basis of interest rates as determined by competitive bids. The financial stability of each bank is also taken into consideration in allowing it to qualify as a city depository.

Bureau of Taxation

The bureau of taxation should be responsible for the equitable distribution of the tax burdens imposed under the taxing and other powers which have been delegated to the city government, and which involve the assessment of property, the taxing of businesses, the determination of benefits and privileges. It should keep the necessary rolls and records covering this work. Its authority, however, should extend only to the point of collection.

Some states require the assessment of general property within municipal limits to be made by county authorities. This is the practice in Ohio. In such cases the bureau of taxation should perform the other functions noted above.

Where the state government does not provide some agency to handle appeals, the city government usually constitutes a board of appeals, or, as it is sometimes called, a board of equalization. Generally this board consists of ex officio members. For example, in Kansas City, Missouri, under the manager charter, it is com-

posed of the mayor (presiding officer of the council) as chairman, the director of finance, two councilmen named by the mayor, and the assessor.[1]

Bureau of Purchasing

The bureau of purchasing should buy the supplies, materials, equipment, and certain contractual services for all the departments, offices, and institutions of the city government. All printing should be done under the supervision of this bureau. No contracts should be entered into or orders placed by the purchasing agent without the approval of the controller as to appropriation balances. The purchasing procedure should be made as flexible as possible.[2]

Debt Administration and Management

Where the city government has issued only serial bonds the management of the debt amounts to nothing more than the payment of the interest and the retirement of the bonds as they fall due, the bonds being redeemed directly from the current revenues. In this case the management is not difficult and can be handled entirely by the department of finance. But where the city government has term bonds outstanding, which are redeemable from sinking funds, the administration of the debt is more complex. It seems desirable in such cases to establish a board to advise the department of finance on the management and investment of the sinking funds. Such a board may be constituted either of appointed members

[1] Many of the recent laws providing for ex officio boards include the assessor as a member. There is a growing feeling, however, that making an assessor a member of the board created to pass on the accuracy of his own administrative findings is analogous to making a judge a member of the higher court before whom an appeal from his own decision is to be heard. An assessor should, of course, be required to attend all hearings of the board of review or appeals and to present his arguments in support of the valuation he has fixed, but he should have no voice in deciding between the validity of his own arguments and those of the protesting property owner.

[2] This is fully discussed below in Chapter IX.

or of ex officio members. An example of the first type is the board of commissioners of the sinking fund of the city of Toledo, consisting of four citizens appointed by the mayor. The second type is found in a number of manager cities. In Cleveland the sinking fund commission consists of the mayor, the director of finance, and the director of law. The sinking fund board of Knoxville, Tennessee, consists of the manager, the director of finance, and the city attorney. In Kansas City the sinking fund commission is composed of the manager, the director of finance, and the auditor (an appointee of the council). In some respects the ex officio type of sinking fund board is superior to the other type, provided it is so constituted that the department of finance, the department of law, and the city executive or the council are represented. The records and accounts relating to borrowings, debt payments, and sinking funds should be kept in the department of finance under the bureau of control and accounts.

Administration of Municipal Pensions

Pensions for all municipal employees are now generally looked upon with favor, and several of the larger cities have already established pension systems. An important part of the administration of pensions is the management of the pension funds. This is largely a fiscal matter and should be handled by the department of finance.

The general practice is to provide for a pension or retirement board in connection with the administration of the pension system. Such a board may be entirely ex officio, or it may be constituted especially for this purpose. The New York City pension system is managed by a board of the former type, namely, the board of estimate and apportionment. A board of the latter type is found in Boston. It is composed of the city treasurer,

a member appointed by the mayor, and a third member representing the employees appointed by these two members. This latter type of board is generally favored by the advocates of municipal pensions on the ground that it gives the employees representation on the body.

Employment or Personnel Supervision

The employment or personnel work is practically neglected in all cities except those with civil service. This should not be the case, since personnel supervision is a very important element in the management of city affairs. Personal services take up a large percentage of the current operating cost of city governments. The regulation of such services is closely associated with the general fiscal control, hence with the work of the department of finance.

Recently there has been considerable discussion on the organization of the employment or personnel work in city governments. As a result, three different types of organization have been suggested. One is the civil service commission, the members of which are either selected so as to be independent of the executive or appointed by the executive for long, overlapping terms. This commission has general supervision over the rank and file of the city's employees. In some cases, however, the standardization of salaries has been made a function of the department of finance, or some agency other than the civil service commission. Another type of organization is that provided for in the manager charter of Kansas City. A personnel department has been established with a director, appointed by the manager, as its head. The creation of this department places the personnel work upon an equal footing with the other major functions of the city government. It also assumes that this work is almost entirely administrative in character and should, therefore, be under the direct control of the executive.

A third type of organization is that recently provided for in Charleston, South Carolina. A division of employment has been created in the department of finance under the direction of a single officer called the employment supervisor. This type of organization would seem particularly desirable in the smaller cities where the volume of personnel work does not justify the establishment of a department.

No matter what the organization of the employment or personnel agency may be, it is important that this agency should coöperate at all times with the department of finance, especially the bureau of control and accounts. It should approve all payrolls as to designation and rate before they are sent to the controller, or it should furnish the controller with the data necessary to perform this examination. It should classify the positions in the city's service and establish as far as possible standard salary rates.[1]

Municipal Activities Financially Independent of City Authorities

The schools, sometimes the parks and a few other activities, are financially independent of the council in a great many cities.[2] Their spending requirements are not made a part of the city budget and their fiscal operations are not subject to control by the city administration through its department of finance. In the case of the schools, this is due mainly to the fact that for years the school men have advocated not only separate school administration, but separate control of school finances. In their efforts to improve the public schools at a time when city admin-

[1] This is important from a financial standpoint, as is pointed out in Chapter VIII.

[2] In Chicago, for example, the schools, the libraries, and the parks are financially independent of the city government. In fact, there are some twenty local governmental units which are not a part of the city government. While these are supported by the taxpayers of the city, the financial authorities of the city government have practically no control over them.

istration generally was in a more or less chaotic condition, they came to the conclusion that complete independence, financial and otherwise, of the school system from the city administration, was the thing most to be desired. Since that time the organization of city administration has been systematized in many cities and businesslike methods have been adopted in carrying on public activities. But the school men still cling to the idea of administering the public school system as a separate entity, claiming that to associate it with the other activities of the city government is to put it into "politics." They have apparently become so engrossed in the work of education that they have forgotten about the other functions that must be carried on by the city government, many of which are equally as important as education. As they see it, the city authorities can make up a budget for all municipal activities, weighing the needs of one against the other and cutting the estimates to come within the anticipated revenues, but the schools must be left financially free with the definite assurance of an increasing budget from year to year.[1]

In many of the cities just this situation exists at the present time. The schools are getting as much as 50 per cent of the total revenues of the city, leaving all the other activities of the city government to be financed on the remaining 50 per cent. This does not mean that the schools, in these instances, are getting more funds than they can use, but it does mean that the needs of education are not being weighed in comparison with the needs of the other important activities of the city government. Consequently, the cost of education has risen out of proportion to the cost of the other necessary municipal activities. A striking example of this is found in the city of

[1] Some school men have recently advanced the idea that education is a state and not a local function, and should, therefore, be completely independent of municipal authorities. See B. F. Pittenger, *An Introduction to Public School Finance*, Chapter VII, especially p. 193.

Lincoln, Nebraska, where fifty cents out of every dollar of revenue collected within the city, during 1921, went to schools.[1] Out of the remaining fifty cents, the city got twenty-seven cents to carry on all of its other activities, and eleven and twelve cents went to the county and the state, respectively. As a result some of the most essential activities of the city were so restricted by lack of funds that they could not be operated effectively. For example, the police department was curtailed to the extent that it could not patrol the residential sections of the city, so the residents were compelled to provide their own night patrol and pay for it out of their pockets.

This condition might have been endured with complacency when appropriations were small and taxes light, but it cannot well be disregarded at this time when city officials are at their wits' end to discover sufficient revenue to meet the bare costs of the essential municipal activities. Communities in many parts of the country have already grown uneasy over this state of affairs and investigations have been made, particularly in New York State, in an effort to determine the proper fiscal relation of the public schools to the other activities of the city government.[2] City officials and writers on city government are now venturing to criticize the methods generally advocated by educators and adopted by boards of education in financing public school work.[3] Courts, too, are beginning to take a different view of the matter. Not long ago, the New York state court of appeals, in deciding against the Buffalo board of education in a mandamus action brought by the board to force the commission council to restore $343,000 in salary items which were disallowed by the commissioner of finance and accounts in

[1] *Analysis of 1921 Taxes in Nebraska*, compiled by the State Department of Finance, page 40.

[2] See *Report of the Special Joint Committee on Taxation and Retrenchment*, New York State Legislative Document No. 80, 1920, Chapter II.

[3] See W. P. Capes, *The Modern City and Its Government*, Chapter XII.

compiling the tentative budget for the fiscal year 1920-21, said:

> It would seem unfortunate, if in a city of the size of Buffalo, a body however able and devoted, not elected, not removable by the appointing power, not even with a tax budget of its own so that its action would be brought sharply to the attention of the public, might command whatever part of the limited revenues it thought best to the sacrifice of other interests perhaps as essential. Such a board has no detailed knowledge of other public needs. It knows nothing of the number of police required or of the demands to safeguard the public health. Its view is limited to its own department, of course important, but likely to be regarded as of unique importance by those who have its interests at heart. In all governments, in the nation, the state, the city, the problem is to reconcile a hundred pressing needs so that the total of the appropriations shall not be excessive. In Buffalo, at least, this can best be done by somebody able to consider them all and their relative importance.[1]

It may be pointed out that an independent school system usually duplicates such fiscal functions as accounting, purchasing, and budget making as well as many of the general services of the city government, such as, architectural, engineering, legal, and health services. This, of course, tends to increase the cost of operating the schools. The organization of the work should be such as to avoid duplication of activities not only in public education but in all other local governmental functions within the city. This means that there must be a large amount of administrative and financial control exercised by the general city authorities over all these functions.

[1] Matter of Emerson *vs.* Buck, 230 N. Y. 380 (1921).

CHAPTER III

THE BUDGET AND BUDGET MAKING

Gladstone, the English master of budgetary technique, once said: "Budgets are not merely affairs of arithmetic, but in a thousand ways go to the root of prosperity of individuals, the relation of classes, and the strength of kingdoms." This statement epitomizes the significance of the budget and the importance of budget making in government. The budget, we may infer, is fundamental in any scheme of democratic government. It is a means of developing responsible leadership, which is necessary to popular control. Leadership, especially executive leadership, is demanded in budget making. And why? Because budget making requires skill in planning administrative work, a mastery of financial details, a comprehensive understanding of governmental functions and their needs, and a thorough grasp of taxation and its relation to the social and economic processes.

A generation ago, no attempt had been made to apply budget methods and procedure to American city governments. In those days city authorities were spending thousands, even millions, of dollars annually with little or no thought as to where the money was coming from or what they were getting for it. Often the expenditures and the income of the government did not balance. Some city departments received too much; others were starved from lack of funds. Frequently money was borrowed to meet current bills and the obligation of payment passed on to the next generation in the form of long term bonds.

But things have changed. Today practically every pro-

gressive city government in the country has established a budget procedure of some kind.[1] In many cases, however, this procedure is not very effective, owing to the form of administrative organization or to the relation that exists between the city executive and the legislative body. But the present trend in the development of municipal organization points toward the gradual elimination of most of the difficulties that now stand in the way of a comprehensive and workable budget procedure in many cities.

The Budget and Budgetary Procedure

Among the financial operations of the city government, planning stands first. It is the point in the cycle of such operations at which we begin our consideration of financial methods and procedure as set forth in the subsequent chapters of this volume.

What does financial planning comprehend? Briefly, two things: (1) a complete plan set up in the form of a carefully prepared document; and (2) a definite procedure, carried out by properly constituted agencies of the city government.

The first is the budget. It shows the proposed expenditures of the city government and the means of financing them for a fixed period. In other words, the budget must balance the outgo, or the expenditures, with the income of the city government. Unless it does this, it is not a budget. It has been said that "stable finance rests not on pious hopes, but on making both ends meet." To

[1] In the development of municipal budget procedure and methods, the New York Bureau of Municipal Research has had a leading part. It began immediately after its organization in 1906 to study the budget needs of New York City. Among its first reports was one on "Making a Municipal Budget," published in 1907. This report was perhaps the first attempt, through a careful analysis of a local situation, to show the need for the application of budget methods to the work of city governments. The effort put forth in getting out this report may be regarded as the beginning of what later became a nation-wide campaign to educate the public in the significance of the budget.

make both ends meet is the main purpose of the budget plan.

The second is the budgetary procedure. It includes the bringing together of estimates covering the various financial needs of the city government, the checking of these estimates against recorded information relative to past expenditures and income, the preparation of the budget document and supporting bills by a responsible officer or agency of the government, the adoption of the budget and the enactment of the bills designed to carry it into effect by the legislative body, and the carrying out of the budget plan by the administration according to the stipulation of the legislative body. These are, in brief, the various steps in budgetary procedure. It is apparent that such procedure involves, either directly or indirectly, every phase of municipal finance and touches all the functions of the city government.

By what authority do city governments generally adopt budgetary procedure? Such procedure may be authorized by state law, charter provision, or city ordinance; or it may have only the sanction of local custom. As a rule there is no uniformity in the budgetary legislation enacted by city councils. Cities within the same state often have widely different provisions relative to the preparation and authorization of the budget. The effectiveness of the budget system under such provisions, of course, varies greatly. In view of this fact, several states have recently enacted laws providing for the establishment of uniform budgetary procedure in all cities within their borders. These laws sometimes require the state government to assume more than merely nominal responsibility in assisting the municipal authorities to install a budget system and to make it operate. Indiana and New Mexico have extended rather drastic administrative supervision on the part of the state government over all local budgets. In fact, the Indiana supervision

was so drastic when established in 1919 that it has since been modified. Now, the state tax commission has the authority to reduce a local budget upon the protest of ten taxpayers of the community affected and after a public hearing in the locality. In New Mexico all local budgets are made up according to a general form and a copy is required to be filed with the state tax commission. This commission has the power to examine the budget of any local government and to increase or reduce it, the decision of the commission being final. It is doubtful if other states will see fit to go as far as these two states have gone in regulating local budget making powers.

In the following discussion of the budget and budget making, we cannot refer, because of limited space, to many of the variations in local budget practice. However, these have been taken into consideration in outlining the budget forms, methods and procedure contained in this chapter. Our presentation is from the standpoint not of theory but of prevailing tendencies in municipal budget experience. We have constantly kept in mind the practical side of budget making.

This chapter covers the budget document and bills, long-time financial programs, the character and classification of budget information, the budget estimate forms, and the general budget making procedure. Briefly, it comprehends the formulation and authorization of the budget. The execution of the budget under effective methods of budgetary and auditing control is discussed in Chapter IV.

Form and Contents of the Budget

No uniform practice prevails among cities as to the form and contents of the budget. In some cities the budget is a fairly complete document, setting forth in considerable detail both the proposed expenditures and the income to meet them; in others it is merely a short

statement of proposed appropriations and a brief summary of anticipated revenues. In practically every case, however, the budget is incomplete in some of its essential parts, or the information contained in it is poorly arranged. For example, the New York City budget gives the expenditure data in great detail but does not contain even a brief statement of the city's income. Such a document, of course, cannot be regarded as a budget.

Since the main purpose of the budget is to present a complete picture of the finances of the city government, the budget document should be so set up and summarized as to make this picture quite clear to the councilmen, citizens, and taxpayers. This document should be presented in two parts. The first part should show the budget plan as a whole, presenting it through a general budget summary with a few supporting schedules and charts and a budget message. The second part should present all supporting statements and information, such as the detailed estimates and other data relating to the financial condition and operations of the city government.

The Budget Message

The most important part of the budget document, from the standpoint of illuminating the financial plan for the citizens, is the budget message which should be prepared by the mayor, or manager, or other budget making authority. This message should set forth in clear and simple style the main features of the financial plan as presented in the general budget summary and the supporting schedules. It should explain those matters which cannot well be shown in tables and financial statements. It should show what is being done by the city authorities looking toward long-time planning, especially for improvements, and how such a plan, if any, is being carried out each year through the budget. It should discuss departmental organization, personnel, and methods looking

toward more effective service. It should emphasize the results that are being obtained in the different fields of municipal work as compared with the cost of the work. It may include a discussion of the taxable wealth and the economic and industrial conditions of the city. The budget message should be printed in the budget document preceding the general budget summary and the supporting schedules. It should refer to these statements and to the detailed estimates and other financial data in support of the budget proposals.

The General Budget Summary

The complete budget plan of the city government should be shown in one summary statement on a single page. The accompanying form (Figure 1) called the "general budget summary," shows how this statement should be set up. On this form all expenditures of the city government are summarized and totaled. Following the expenditures, there is the income, or means of financing, the sources of which are likewise summarized and totaled.[1] The resulting surplus or deficit is shown at the bottom. A surplus at the beginning of the fiscal year is added to the total income, while a deficit is subtracted from it. If the budget is perfectly balanced, there should be theoretically neither surplus nor deficit at the end of the budget year. However, this condition is never actually the case; hence a small surplus may be shown at the end of the budget year, but a deficit is never permissible. In fact, a surplus amounting to 1 or 2 per cent of the total general property tax levied for the year may be required in some cities to cover uncollectible taxes. The general property tax is set up separately from the other revenues, since in most cities it is the elastic source of revenue in balancing the budget. Usually the other

[1] The groups or classes on this summary form are explained in a subsequent section of this chapter, pp. 59-77.

GENERAL BUDGET SUMMARY

For the Fiscal Year 19—

	Supporting Schedule Numbers	Previous Year (Actual)	Current Year (Estimated)	Budget Year (Allowed)
Expenditures				
Current expenses:				
Services—personal	1,3			
Services—contractual	1,3			
Commodities	1,3			
Current charges	1,3			
Total current expenses	1,3			
Current obligations (fixed charges)	1,3			
Properties	1,3			
Debt payments:				
Serial bond redemption	5,8			
Sinking fund installments	6,8			
Total debt payments	5,6,8			
Total expenditures				
Income				
Revenues:				
Taxes (except general property tax)	2,4			
Rights and privileges	2,4			
Sales and services	2,4			
Interest and premiums	2,4			
Fines and forfeitures	2,4			
Grants and donations	2,4			
Pension assessments	2,4			
Special assessments	2,4			
Total revenues (except general property tax)	2,4			
Borrowings	4,7,8			
Sales of properties	4			
General property tax (rate: — mills on total valuation of $———)	2,4			
Total income				
Surplus (or deficit) at beginning of fiscal year	4			
Total means of financing				
Total expenditures				
Surplus (or deficit) at end of fiscal year				

FIGURE 1. *Pro Forma* General Budget Summary.

sources of revenue are determined or estimated before the general property tax rate is calculated.

The schedules supporting the various items on this summary are indicated by numbers. This form provides a column not only for the expenditures and the income of the budget year but also for the expenditures and the income of each of the two preceding years. This is done for comparative purposes. However, it should be understood that the amounts of the same item in different years may not be comparable owing to changed conditions or extraordinary situations. For this reason the general budget summary may show only the expenditures and the income of the budget year, and such comparisons with previous years as seem necessary may be made in the budget message.

The essential feature of the general budget summary, which should not be lost sight of, is the balanced relation that it shows between the expenditures and the income of the budget year. The other information is purely of a supporting character. This summary should be the first statement in the budget document and should immediately follow the budget message.

The Supporting Schedules

The items on the general budget summary should be supported by schedules which are built up from the detailed estimates and other data. A large number of such schedules may be set up, but only those that are necessary to a clear understanding of the budget plan are described below. Each schedule should carry a number by which it is designated on the general budget summary.

The first of the supporting schedules (Schedule No. 1) should show expenditures classified by organization units, that is, the departments, offices, boards, and other agencies of the city government. It should be set up with the proper caption and with a columnar arrangement

from left to right as follows: (1) organization units, (2) totals, (3) services—personal, (4) services—contractual, (5) commodities, (6) current charges, (7) current obligations, and (8) properties. Columns (2) to (8) inclusive should be totaled at the end of the list of organization units. These totals should agree with those on the general budget summary for each main class of expenditures. The last class, namely, debt payments, is omitted from this supporting schedule, since it is analyzed by other supporting schedules.

The second supporting schedule (No. 2) should show the revenues that appear on the general budget summary classified by sources. It should have a suitable caption and the following columnar arrangement: (1) sources, (2) legal reference establishing source, (3) proposed changes, (4) totals, (5) taxes, (6) rights and privileges, (7) services and sales, (8) interest and premiums, (9) fines and forfeitures, (10) grants and donations, (11) pension assessments, and (12) special assessments. Columns (4) to (12) inclusive should be totaled at the end of the list of sources. These totals should agree with those on the general budget summary for each subclass of revenues.

When a city government has several funds other than the general fund, there should be a supporting schedule (No. 3) showing the distribution of expenditures for the various organization units according to the main classes of funds from which the expenditures are made. This schedule would support Schedule No. 1 as well as the general budget summary. It should have the following columnar arrangement from left to right: (1) organization units, (2) total expenditures, (3) general fund, (4) special expendable funds (listing each group separately and giving totals), (5) working capital funds, and (6) endowment funds. Expenditures from the earnings of endowment funds are seldom included in the budget.

But they should always be shown, otherwise the budget will not contain all the financial provisions made for the support of those institutions and agencies of the city government that have endowments. Sinking funds are omitted from this schedule, since they are covered by another supporting schedule.[1]

There should also be an analysis by funds of the income and the surplus at the beginning of the budget period shown on the general budget summary. This schedule (No. 4) should have the following columnar arrangement: (1) main classes of income, including surplus, (2) total income, (3) general fund, (4) special expendable funds (listing each group separately and giving totals), (5) working capital funds, and (6) endowment funds. If any revenue accrues directly to sinking funds, such funds should also be listed in the columnar headings of this schedule.

Another supporting schedule (No. 5) should show the serial bond redemptions. It should have the following columnar arrangement from left to right: (1) purpose of the bonds (list each series), (2) citation of law authorizing bond issues, (3) date of issues, (4) total amount of bonds issued, (5) term of bonds, (6) rate of interest, (7) time of year interest becomes payable, (8) amount of bonds outstanding, (9) amount of interest accrued for budget year, and (10) amount to be redeemed during the budget year.

In case the city government has issued term bonds retired by sinking funds, it will be necessary to have a supporting schedule (No. 6) showing the sinking fund installments. This schedule should show for each sinking fund the following in columnar arrangement: (1) title of fund, (2) legal reference, (3) estimated accumulation by end of current year, (4) reserve required by end of current year, (5) estimated surplus or deficit at end of

[1] These funds are defined below on pages 67-71.

current year, (6) amount required annually by law, (7) amount required annually for complete redemption, and (8) annual installment provided in the budget.

In the event the city authorities propose to issue bonds during the budget year, another schedule (No. 7) is needed. This schedule would support borrowings on the general budget summary. It should set up the following information in columnar arrangement from left to right: (1) purpose of bonds, (2) department directing expenditure, (3) total expenditure required for purpose, (4) total of previous bond issues, (5) amount of proposed bond issue, (6) term of bonds, (7) rate of interest, (8) time of year interest payable, and (9) amount of interest accrued for budget year.

Finally, there should be a schedule (No. 8) showing the redemption requirements and annual interest charges as effected by proposed bonds. This should have the following columnar arrangement: (1) year, (2) redemption requirements of existing debt, (3) redemption requirements of proposed debt, (4) total redemption requirements, (5) annual interest charges of existing debt, (6) annual interest charges of proposed debt, (7) total annual interest charges, (8) total redemption and interest requirements of existing debt, and (9) total redemption and interest requirements of existing and proposed debt. The main purpose of this schedule is to show the distribution of the city's debt over future years until the longest term bonds have matured. Any peaks in the curve of the redemption requirements and interest charges then become apparent.[1] Hence, the redemption of proposed bonds may be distributed, if state laws permit, so as to lessen or eliminate these peaks. In this way an equable distribution of the debt burden over future years may be arranged as the bonds are being issued from time to time.

[1] See below, Chapter XIV, especially pages 476-480.

The Estimates, Cost Data, and Financial Statements

The second part of the budget document should include a recapitulation of the expenditure estimates by organization units followed by the detailed estimates themselves together with supporting cost data and information.[1] Accounting statements covering the financial condition and operations of the city government for the past year, as outlined in Chapter V, may also be included.

The recapitulation of the estimates should be set up so as to show the expenditures for each main class under each organization unit of the city government. It should show the proposed expenditures for the budget year and the estimated or actual expenditures during each of the two preceding years for each class and unit. It should indicate the subsequent pages upon which the detailed estimates and other data for each organization unit are to be found.

The detailed estimates should show the complete information contained on the estimate sheets of the various organization units and, in addition, the budget allowances of the budget making authority for each item or group of items. Supporting information on operation, per capita and unit costs, and results of work should also be included, whenever possible, with the estimates of each organization unit.

The basic data of the budget plan are, of course, essentially accounting information; that is, the records and analyses of the financial transactions of the city government. But this is not all. Certain statistical information gathered outside the accounting system is of value; this relates to social changes and economic conditions. The financial policy of a city government cannot be determined wisely without an understanding and an interpre-

[1] These estimates and other data are discussed below in this chapter, pages 77-87.

tation of many more facts than those which appear upon a consolidated balance sheet.

Charts and Graphs in the Budget

The use of charts and graphs in setting forth financial data is discussed in Chapter VII. A word may be said here on the application of graphics to the information contained in the budget document. Graphs and charts may be included in the budget to help visualize the information contained in the supporting schedules to the general budget summary. Bar charts are perhaps better for this purpose than the ordinary line or curve charts. A less exact means, though often used for this purpose, is the pie chart. The line or curve chart, however, should be used to indicate the trend of the debt burden, as shown in one of the supporting schedules (No. 8). The information shown on the supporting schedules which analyze expenditures and income, should be presented on bar charts. Such charts should show expenditures by major classes, expenditures by organization units, income by main groups or classes, and income by funds. In the supporting estimates and other data attached to the budget plan, charts and graphs may be used to show the administrative organization of departments and institutions and the trend that the actual expenditures of each organization unit has taken during the months of the past or current year as compared with the allotment of the appropriation.[1]

All City Activities Included in the Budget

That the budget should include all the activities of the city government is quite important. In many cities the budget covers only a portion of the total income and expenditures of the government. The budget of San Francisco includes only about $35,000,000 of the city's total

[1] An illustration of such a graph is shown below on page 232.

expenditures, amounting to over $50,000,000. Expenditures from bond funds, the county road fund, and for the operation of such enterprises as the municipal railway are not incorporated in the budget. Furthermore, the budget, as presented to the board of supervisors, does not contain estimates of revenues other than property taxes, which amount to over $4,000,000. Hence, it does not by any means give a comprehensive picture of the city's finances.

The expenditures of municipally owned utilities are frequently omitted from the budget. Since these utilities are generally regarded as self-supporting, their finances are rarely scrutinized as in the case of ordinary departments. As a result, serious operating deficits often develop before the city authorities are aware that the utilities are not making ends meet. In such cases, the rates have to be increased to pay off the deficit. This amounts to compelling the customers of a later period to pay part of the bills of the customers of the period under which the deficit was created. Such situations may be avoided by including the municipally owned utilities in the budget.

Bills to Authorize the Budget

Cities should follow the practice, now widely accepted among states, of having a set of bills—appropriation, revenue and borrowing—to carry out the budget plan. These bills should be prepared by the mayor, or manager, or other budget making authority and presented along with the budget document when it is sent to the city council.

Segregated versus Lump-Sum Appropriations

There has been considerable discussion from time to time on the subject of the "segregated budget." This discussion seems to have arisen mainly over the failure

to distinguish between the budget and the appropriation bill. The two should be separate and distinct documents, although they have often been confounded, especially in some cities where the only document produced is a segregated appropriation bill. The purpose of the budget, as has already been pointed out, is to present a financial plan and to give complete detailed information with regard to it; the purpose of the appropriation bill is to present the expenditure side of the budget in the form necessary for its enactment into law. The former, therefore, should be segregated; but the latter not necessarily so. Experience dictates that when proper arrangements have been made to administer and control expenditures, appropriations should be made in lump sums rather than in detailed or segregated form.

A few years ago there was a general demand over the country for highly and rigidly itemized appropriations. This was the result largely of disclosures in many city governments of the diversion and misuse of public funds. It was thought that the remedy was to define every item of appropriation and to nail down the conditions surrounding it. The experience of New York City in this regard has been summarized as follows:

> A significant feature is the development of the technical devices to check the corrupt expenditure of money by department heads—the use of money for purposes other than those intended by the appropriating authorities. This is done by the extensive segregation of items of expenditure and the establishment of auditing supervision in the comptroller's office. . . . The spending officer is told how much money he can spend and for what objects he can spend it in detail and the comptroller holds him to the book. This does not necessarily mean wise expenditure or economical expenditure. Segregation and control are the product of a search for financial honesty in municipal administration. The millions of dollars to be spent are all set forth in minute sums in the appropriation ordinance. The citizen can see them there. The comptroller holds the department heads rigidly to the items, and the taxpayer, if he will take the trouble, can see the vouchers and other documents which record *expenditures according to law.* The American faith in the voucher is almost pathetic, but it is in a way justified—by

experience with the disastrous practices which arose under the system of uncontrolled lump-sum expenditures.

It has been said that "the hand is subdued to the dye in which it works." This is true. So budget reform bears the imprint of the age in which it originated. Wearied of the continued story of public expenditures for corrupt purposes designed to serve the ends of political machines, citizens demanded an *accounting*. This is literally what they got. . . . How far it hampers the upright official and leads to innocent waste of funds is another matter. But new economies in management are to come not from a return to old practices but from advances made from the points now gained.[1]

The trend is now distinctly away from the highly itemized and rigid appropriations. Cities need a method of making appropriations that will give free play to administrative officers in carrying on the work of their departments, and yet preserve the budget plan as adopted by the council and at the same time protect the public interest. This can be secured through appropriations made in lump sums to each organization unit, provided the city has established the proper financial organization and accounting control. By applying a system of allotments under executive supervision, the lump-sum appropriations may be made to cover all expenditures of each organization unit according to a definite work program. This is explained in the following chapter.[2]

The Appropriation Bill

The advantages of a single appropriation bill over a series of such bills are obvious. In fact, it is almost common practice among cities to have only one appropriation bill. This avoids confusion in the comparison of appropriations with the budget plan of expenditures. A point that should be stressed in this connection is the fact that the passage of supplementary appropriation bills during the fiscal year by the city council is apt to throw

[1] C. A. Beard, *Municipal Research*, No. 88, August, 1917, published by New York Bureau of Municipal Research, pp. vii-viii.

[2] See below, pages 104 ff.

the whole budget plan out of balance. This is discussed in the next chapter.[1]

The important thing in authorizing appropriations is to fix responsibility for the expenditures that are to be made. This is accomplished by making the appropriations to organization units rather than to functions or activities. The head of each organization unit then becomes responsible for expending the appropriations made to the unit in accordance with the budget plan. The appropriation bill should state the period covered by the appropriations and should set forth the amounts appropriated to each organization unit, indicating the fund or funds from which these amounts are to be drawn. The total amount to be invested in properties by each organization unit should be appropriated separately from that required for the current expenses of the same unit. The appropriation bill should contain a provision requiring quarterly allotments of the appropriation for current purposes to be made by the administrative head of each organization unit, these allotments to be approved by the executive head of the city government and transmitted to the chief accounting officer before any expenditures are made. This provision should further require that the allotments made for any organization unit at the beginning of the budget period should follow the general budget plan adopted by the council and should cover the entire year by quarters, any necessary changes in the allotments being made at the beginning of each quarter subsequent to the first quarter.

Undesirable Kinds of Appropriations

Appropriations which are properly made have three essential features; viz., a *definite amount* to be applied to a *certain purpose* during a *fixed period.* An appropriation of fifty thousand dollars made by the city council

[1] See below, pages 102-103.

to the department of finance for carrying on its work during a fiscal year has all of these features. This is known as a definite annual appropriation.

There are three other kinds of appropriations commonly found in appropriation bills, which lack one or more of the essential features enumerated above. These are "indefinite," "revenue" and "continuing" appropriations. An indefinite appropriation is one that does not state the exact amount appropriated, and consequently makes it impossible to balance the budget or to exercise proper control over the expenditure.

A revenue appropriation is one that authorizes the expenditure of certain receipts from taxes or other sources. It not only has the disadvantage of being indefinite, but it fluctuates in amount from year to year depending upon the change in property valuations or business conditions in the city. With such an appropriation a department or institution may get more than it needs one year and fall far short of its requirements another year. A common example of a revenue appropriation is the dedicated fund available from a special mill levy. The main argument in support of such a levy is that the fund thus made available for the work of a department or institution increases from year to year in proportion to the general increase in the city's wealth. This argument is often advanced, especially in the case of educational institutions and agencies. But, should the expansion of the work of a given department or institution of the city government keep pace continuously at some fixed ratio with the growth of wealth in the city? In other words, is the amount of taxable wealth in the city an index at all times of the amount of money that should be spent to carry on the work of a certain activity of the city government? Neither question can be answered in the affirmative.

A continuing appropriation is an authorization to

spend indefinitely, year after year, a given amount for a particular purpose. Here the element of time is uncertain; the appropriation may run for one year, it may run for five years, or it may run for ten years, unless changed by the legislative body. During this time the work for which the appropriation was made may have greatly decreased in importance, with the result that there may be much more provided than it is necessary to expend. Those who favor continuing appropriations argue that such appropriations permit a department or an institution of the government to plan its work over a period of years and, therefore, it is not subjected to what they choose to call "the cataclysmic theory and practice of administration"—hand-to-mouth existence.[1] There can be no objection to planning over a period of years for any work the government may undertake; in fact, such planning is extremely desirable, as is pointed out below.[2] But the difficulty arises in the distinction between planning and appropriating. Planning does not commit the government to a definite obligation to raise funds; appropriating does. Whenever appropriations are made on the expenditure side of the budget, provisions should be made on the income side of the budget to meet the appropriations. Otherwise, the budget is never exactly in balance. If appropriations are made over a period of years, then the income of the government should be determined over the same period, and every time the appropriations are increased the income should be revised so as to balance. Experience has shown that owing to changing conditions, most city governments cannot run over a year on a fixed budget plan, and even then it is necessary that the appropriations should be made quite flexible so as not to hamper the administrative work. In view of this fact, it seems best to appropriate annually,

[1] E. A. Fitzpatrick, *Budget Making in a Democracy*, pp. 85 ff.
[2] See below, pages 51-55.

or at the most, biennially, for all the activities of the government and to scrutinize carefully each time the whole range of governmental expenditures.

Revenue and Borrowing Bills

Bills to provide revenues and to authorize borrowings for the financing of the budget plan should accompany the appropriation bill. In many cities the sources of revenue (including general property tax and special assessments) are fixed by state laws. Where the city authorities enact ordinances establishing these sources of revenue, such ordinances usually continue in effect until repealed and are not reënacted each year. In some cities, however, the revenue system is revised annually in so far as it is permitted under the state laws. Whenever changes are proposed in existing sources of revenue, or new sources are recommended by the budget making authority, then bills or amendments to existing ordinances should be drawn to carry out these proposals or recommendations. Bills should also be drawn and submitted to the city council covering any proposed borrowings included in the budget plan, if this is in accordance with the procedure set up by the state legislature. The scope of such bills is usually limited by state laws, and even constitutional provisions.

The tax levy bill is the means of giving elasticity to the revenue system of cities. If it is necessary to increase the income of a city government to balance its budget, the increase is usually met by raising the amount to be levied against general property. The tax levy bill of most city governments is a simple document. It usually lays the general tax levy in mills on each dollar of assessed valuation of real and personal property within the limits of the city and taxable under the laws of the state for city purposes. In the event the general levy is distributed to two or more funds, the distribution is made either by mills

aggregating the general levy or preferably by amounts aggregating the total amount that the general levy is calculated to yield.

Long-Time Financial Programs

Budget planning for a city government does not properly extend beyond a year. The main reasons for this are that the budget is the plan for definite action on the part of the city council in making the annual appropriations, and that it is the basis for the administrative work program to be applied during the fiscal year in carrying on the city government. However, this does not mean that the years immediately ahead of the budget period should receive no thought on the part of the city authorities and should be left entirely to the "fortuitous concatenation of circumstances." This is almost as bad from a business standpoint as not to plan for the ensuing year. The sooner city authorities generally come to appreciate this fact the better it will be for the citizens and taxpayers of municipalities.

A financial program—not a budget—should be prepared for each city government covering five or ten years ahead, preferably ten years in the case of large cities. This program should set forth year by year, all municipal expenditures, laying special emphasis on expenditures for permanent improvements, and it should show the probable revenues and other means of financing these expenditures. The budget making authority through its staff agency should prepare the financial program. However, in some cities private or special agencies have done so.

The procedure in assembling and reviewing the data for the preparation of the financial program should follow that outlined below for the preparation of the budget.[1] The program estimates cover a longer period

[1] See below, pages 87 ff.

and are less detailed than those for the budget; and for that reason they are less exact. The program when completed should be printed and circulated within the city for the information of the taxpayers. It should be adopted by the city council subject to whatever modifications may seem necessary when the budget is prepared at the beginning of each fiscal year. The program should be modified throughout whenever unforeseen or unusual conditions arise that warrant changes, and it should be extended a year at each annual budget making. As the annual budget is made up each year, the part of the financial program belonging to that year would be embodied in the budget with such changes or revisions as might be necessary.

A beginning has already been made in the preparation of long-time financial programs for city governments. In connection with a complete survey of the city government of Newark, New Jersey, made in 1919, the New York Bureau of Municipal Research prepared a five-year financial program for that city. This was perhaps the first complete financial program prepared for any city in this country. It showed the expenditures for departmental expenses, necessary improvements and debt charges that would be required during the next five years, also the income that would be available to meet these expenditures. Had the city authorities chosen to follow this program, they would not only have been able to tell the effect of the various demands upon the city treasury, but it would have been possible for them to keep the city tax rate practically uniform throughout the entire five-year period.

Last year (1925) a ten-year financial program was prepared for Detroit, Michigan.[1] The mayor of that city

[1] This program is fully described in *Public Business*, published by the Detroit Bureau of Governmental Research, June 15, 1925. See also C. E. Rightor, "How Detroit's Ten-Year Financial Program was Prepared," *National Municipal Review*, February, 1926, pp. 108 ff.

appointed a citizen committee of five members to frame the program. This committee was assisted by a special staff and had the full coöperation of the city departments. The task consumed five months, during which time estimates were prepared by the various city departments for the ten-year period, hearings and meetings were held to revise these estimates, and the program was set up for the approval of the mayor and the council. In considering the estimates, special attention was given to those for permanent improvements. The proposed improvements were listed, as far as ascertainable, in the order of relative desirability and public necessity. These improvements were then included in the program as far down the list as means of financing would permit. The income of the city government to meet the proposed expenditures for each of the ten years was calculated with due regard for the provisions and limitations of state laws. Questions pertaining to pay-as-you-go for permanent improvements, borrowing for such improvements, term and sale of bonds, valuation of the city's taxable property over a long period, and special assessments were considered in arriving at the anticipated income. The financial program when completed was transmitted by the committee to the mayor, who in turn referred it to the city council. At the time of this writing the council had not yet acted on it.

Long-time financial programs, relating only to permanent improvements, have been carefully worked out and applied by the governmental authorities of a few cities. Notable examples of such cities are Bluefield, West Virginia, and Kalamazoo, Michigan, where five-year improvement programs were recently prepared by the city managers and authorized by the councils. These programs include the street improvements, sewer construction, and park and playground developments. They show the projects to be undertaken and completed each

year, how much each one is estimated to cost, and how the work is to be financed.

Although it has not been done to any extent, the development of institutional plants may be planned in much the same manner as other permanent improvements. A definite building program is quite essential to the orderly expansion of institutional work. Of course, where there is a general city program, such as the one prepared for Detroit, the plant needs of the city institutions would be covered in it. The same is true of street improvements and other similar projects.

City planning has recently been recognized in this country as having a distinct financial value in preventing the waste of municipal funds in the construction of public improvements. Not long ago (1914) the city of Boston spent $1,300,000 to open a new street in its congested business district between Boylston and West streets. There was no cross street at this point for about 1,000 feet, a fact which might have been observed many years before and provision made for the new street at much less cost. Another notable example was the extension and widening of Seventh Avenue in New York City in 1913 at a cost of over $4,000,000.

The city plan is essentially a long-time, comprehensive program for the physical development of the city. It includes the major public improvements and facilities which are necessary to meet the social and industrial needs of the community, such as the street system, the parks and recreation facilities, the public buildings, and the transportation system. In addition to the physical side of the city plan, there is the financial side which outlines the methods of paying for the various improvements. It is this latter side of the city plan which ties directly into the long-time financial program.[1]

[1] City planning has not, as yet, been very widely used in this country. The city plan of Cincinnati, Ohio, the preparation of which was completed

A serious drawback to long-time financial planning in many cities is the lack of reliable information on the finances of the government extending back over ten or fifteen years. Often the information is reliable enough, but not in sufficient detail or properly classified to be of much value in financial planning. The difficulties in the way of preparing a long-time financial program are much the same as in the case of making up a budget, but more exaggerated on account of the longer period covered.

Character of the Budget Information

The basic information needed in the preparation of the budget consists mainly of fiscal data. It embraces the essential facts collected from the multitudinous details concerning public income and outgo and the relation that these bear to the operations and accomplishments of the government. This information is secured largely, but not entirely, from the accounting records and reports.

Briefly, budget information relates to four things: (1) the work the city government is doing or undertaking to do (the function or activity); (2) the municipal agency that does or will do this work (the organization unit); (3) the cost of the work (expressed as far as possible in terms of purchases, operation costs, and results); and (4) how the cost is to be met (financed from revenues, borrowings, etc.). A statement of some of the factors involved under these four heads may not be amiss.

in 1925, is noteworthy as the first plan to be officially adopted in a large city. It covers a period of fifty years and distributes the work to be done in detail over five-year periods with a fairly even spreading of the cost. The methods of financing the plan have received special attention. These methods are discussed in Chapter XV of the *Official City Plan of Cincinnati, Ohio*, adopted by the city planning commission, 1925.

The importance of the financial end of city planning is discussed by Herbert S. Swan in his report made in 1922 to the city planning commission of Paterson, New Jersey, on *The Thoroughfares and Traffic of Paterson*. Chapter V of this report covers the administrative and financial machinery for carrying out the plan. Chapter VI is on excess condemnation and Chapter VII on special assessments as a method of financing the plan.

In the first place, we can expect municipal activities to continue to grow, at least, for some time to come. Old activities are being extended; new activities are being added from year to year. This means increased expenditures, resulting in added tax burdens.[1] The only way to keep these expenditures within the ability of the taxpayers to meet them is through careful budget planning. Such planning must consider not only the cost of the various municipal activities but also the service each one is rendering to the public.

In the second place, any work the city government carries on must be performed by some one of its agencies, that is, by a department, a bureau, or an institution. The type or character of each of these agencies influences in some measure the cost of the work performed by it. If this were not true, no great significance would attach to organization and methods in municipal government. But since we know that these things have a direct bearing upon the cost of services rendered, they are therefore important from the standpoint of budget making.

In the third place, there is the actual determination of the cost of every kind of municipal work. Arriving at this cost is the real nub of budget making. There are three possible methods of doing it: (1) through an analysis of purchases, that is, the services, commodities, properties, and so forth, which are bought by the city government to carry on its work; (2) through an analysis of the operation costs of the municipal departments, bureaus, and divisions; and (3) through an analysis of the actual results or accomplishments of departmental and institutional services.

So far, in practice, the information for budget making purposes has been based largely upon an analysis of pur-

[1] See above, Chapter I. What work the city authorities will or will not undertake is largely a matter of policy; only the financial requirements of such work concern us here.

chases. The budget estimates present in greater or less detail the services, commodities, properties, and so on, required by the various city departments and agencies, and compare the estimated cost of these with past and present expenditures for the same things. These estimates are based upon the general accounting information, the greater part of which has to do only with transactions incident to purchases and payments made by the city government.[1] The efforts of accountants and others have been directed in the past largely toward classifying and systematizing this information. The result is that we know definitely how much it costs to purchase the various things required to run a department of the city government, but we usually have little or no information on how the department uses these things or what it accomplishes for the community.

The operation costs of institutional or departmental services and the actual results obtained from such services are important from the standpoint of careful budget making. This information may be supplied through a system of cost accounts maintained by each institution or department of the city government. Such a system assumes that the work of the organization unit is resolved into its essential activities and that the unit cost of performance for each of these activities is obtained by some convenient measure.[2] Cost data are now generally recognized as being valuable in budget making and almost indispensable to the efficient administration of many of the city's functions. They furnish a real basis for judging the administrative costs of municipal services and for determining the policy to be followed in the support of these services.

The application of cost accounting methods in determining the working efficiency of municipal departments

[1] See below, Chapter V.

[2] Cost accounting and its application are discussed below in Chapter VI.

and agencies is still largely limited to public works, public utilities and certain institutional services. More than ten years ago an interesting experiment was conducted in New York City looking toward the development of a "cost data" budget for the borough of Richmond.[1] Cost records were installed and a continuous field survey of departmental operations was carried on by a staff of inspectors. The information thus gathered was used in checking up the working efficiency of the departments. The scheme was abandoned in 1915, after only about four years of application. During this time it was practically forced on hostile departments and received the half-hearted support of the central authorities. Hence the scheme cannot be regarded as impracticable, because it failed under these conditions. It has worked successfully in industry.

Lastly, we come to financing the cost of municipal work. As we have already pointed out, city authorities usually determine how much they are going to spend before they figure on how much income they will have. If the estimated expenditures exceed the anticipated income, then they try to find some way to increase the income. Municipal income may be increased through additional revenues, sales of properties, or borrowings. The increase of revenues brings up the vexatious problems of taxation. Borrowing involves such questions as the nature of expenditures for which bonds should be issued, the kind of bonds, and the term of such bonds. These problems and questions are considered in other chapters of this volume. Fund restrictions may make it difficult to finance municipal expenditures and may hamper the power of the city authorities in budget planning and in making appropriations.[2]

[1] "The New York City Budget," *Municipal Research*, No. 88, August, 1917, pp. 112-127.

[2] These are noted below, pages 68, 70, 71.

Classification of Budget and Accounting Information

The classification of financial data is essential in budget making. It aids in gathering, compiling, and reviewing the facts that go into the budget; enables comparisons to be made; insures uniformity in presentation; and facilitates accurate planning. The classification should be such as will clearly reveal the essential facts regarding the nature of expenditures and the sources of income. It should never be carried to the extent of obscuring the fundamental significance of the facts classified. The substance of these facts is always more important than their arrangement.

Expenditure Classification

Several schemes for the classification of expenditure data have been devised for use in connection with accounting and budget making. These are confined almost entirely to the classification of information concerning the purchases and payments made by the government. Five general types of expenditure classifications may be noted, as follows: (1) functions, (2) organization units, (3) objects, (4) character, and (5) funds. These classifications naturally overlap to a certain extent. In making use of some of them, it is necessary to superimpose one upon the other. Some must be subordinated to others, according to their use and relative importance from the standpoint of budget making.

The work of the city government may be divided into major functions, and these major functions may be subdivided into minor functions. The latter approach closely the working units, or activities. There are several classifications of the major functions of municipal government. The striking thing about these classifications is their lack of uniformity; each city follows a different arrangement of its functions. Probably the best

known functional classification is that devised and used by the United States Bureau of the Census in its *Financial Statistics of Cities*. This classification, as it applies to the general governmental activities, is set up under the following heads: (1) general government; (2) protection to persons and property; (3) conservation of health; (4) sanitation or promotion of cleanliness; (5) highways; (6) charities, hospitals, and corrections; (7) education; (8) recreation; and (9) miscellaneous. To this group of general governmental activities are added two other groups, namely, public service enterprises, and debt payments. This is not strictly a functional classification, but rather a convenient arrangement for grouping the total expenditures of municipal governments under a few headings. It is the means, however, of compiling the most authoritative and comparable financial statistics of city governments that we have. Most city authorities use it only in submitting the financial data to the Bureau of the Census, and not in keeping their accounts or in preparing their budgets.

The functional classification is valuable not only from the standpoint of statistical and general information, but more particularly with respect to organization. Modern city organization is built along functional lines, a major function constituting the work of a department and the subordinate functions within this major function constituting the work of the bureaus or divisions. The functions therefore parallel the organization units, that is, the departments, bureaus, or divisions of the government. Emphasis must be placed upon the departments, bureaus, or divisions for budget making purposes, since the appropriations are usually made to these units. This is necessary in order to fix responsibility upon the department, the bureau, or the division head for carrying out his part of the budget plan. We cannot get away from the organization or working units of the government and

still maintain full responsibility for the work that is to be done.

While it is desirable to make appropriations only to organization units, the information presented in the budget does not have to be confined to an arrangement on the organizational basis. It may be presented under functional headings and according to functional arrangement irrespective of the organization units. In fact, functional classification is often serviceable in calling attention to faulty and uneconomical organization. Functional grouping of expenditures is sometimes helpful in promoting a wider appreciation and a better understanding of what the government is doing. If such is the case, then it is worth while to summarize the expenditures of the budget on a functional basis.

A functional classification may be made according to the major functions of the government, which in many cities will practically follow the departmental organization. Where subordinate functions are shown in the classification, they will in many instances correspond to the bureaus or divisions within the departments. Where the functional classification does not line up very well with the organization unit classification, the two should be shown separately, the former not being superimposed upon the latter, as is sometimes done. Of course, parallels between the two classifications should be drawn so as to show the existing relationships, and the totals should be made to agree at certain points. This enables comparisons to be made more readily.

The object classification of expenditures is not confined entirely to objects, such as services, supplies, materials, equipment, and properties. Since it covers all expenditures of the city government, it must include those that are not only for objects but also for payments to discharge obligations, such as debt redemption. For want of a better term, we may continue to call it an object

classification. Anyhow, the term "object" is now very well established through usage.

It is doubtful if an object classification, strictly speaking, could be devised to embrace all the expenditures of a large city government such as New York.[1] And, if such a classification were devised, it is even more doubtful if it would be adaptable to accounting and budget making purposes. The chances are that it would not present the expenditure information in the most desirable form.

The object classification, so-called, is the primary accounting and budget classification in most city governments at the present time. In fact, it is the only classification other than organization units according to which many of them attempt to distribute their financial information. But the discouraging thing about it from the standpoint of comparative data, is that there is practically no uniformity in this classification as used by the various cities. One city government follows one grouping; another an entirely different grouping. This is illustrated by the classifications of Dayton, Ohio, and Minneapolis, Minnesota. The Dayton classification, which is perhaps more widely copied among the manager cities than that of any other city, is as follows: (1) personal service; (2) contractual services; (3) sundry charges; (4) supplies; (5) materials; (6) equipment; and (7) lands, buildings, and structures. The catch-all class is

[1] Some years ago the New York Bureau of Municipal Research attempted to devise a "standard classification" along strictly object lines. The classification filled several typewritten volumes before the work was finally given up on account of lack of funds. The main classes, as tentatively outlined, were as follows: 0000, services; 1000, animals; 2000, plants; 3000, substances in bulk; 4000, formed parts, attachments and accessories; 5000, hand tools, utensils, and implements; 6000, equipment for obtaining and communicating information, ideas, and concepts (instruments of thought and expression); 7000, equipment for working upon and with substances and articles (machine tools); 8000, equipment for the production of heat, light, and power, and for refrigeration, ventilation and pumping (plant); 9000, coverings, supports, containers, enclosures, and sites; X000, money and credit; E000, special and miscellaneous, including sets, suits, and complements of related articles.

"sundry charges"; it includes debt service, contributions, pensions, refunds, imprest cash, etc. The Minneapolis classification, which is considerably more detailed, is as follows: (1) personal service; (2) contractual services; (3) supplies; (4) fixed charges and contributions; (5) special and contingent; (6) temporary expenditures; (7) repairs and replacements; (8) permanent improvements and acquisitions; (9) automotive equipment; and (10) revenue deductions not otherwise classified. The fifth class includes such expenditures as those for refunds and indemnities. The sixth class covers cash advances for manufacturing purposes. Automotive equipment is separated from other equipment by the ninth class. The tenth class includes deductions from revenue which do not represent actual administrative costs.

In view of the varying practice in the classification of expenditures for municipal purposes, an attempt should be made to set up a classification of the object type that may be generally accepted and used by city authorities. This classification should be so arranged that it will permit the use of the other expenditure classifications if the city authorities desire to have the financial information classified according to them. In the event the other classifications are not used, this one should be devised in such a way as to supply fairly complete information in systematic order without further classification. Most important of all, it should be elastic; that is, easily adaptable to any city government regardless of size.

The accompanying "expenditure classification" is proposed as one that will meet the above requirements.[1]

[1] The writer proposed this classification of expenditures about two years ago in his *Municipal Budgets and Budget Making* (1925), pages 18-21. It is a condensation of a still earlier classification which appeared in his *Budget Making* (1921), pages 51-53. The present classification has been adopted almost in its entirety by the Indiana state board of accounts for budget making and accounting use in all cities of that state. As adopted by this board, the main classes are eight, namely, (1) services—personal, (2) services—contractual, (3) supplies, (4) materials, (5) current charges,

The seven main classes of this classification may be defined briefly in the following manner. Class 1000, *services—personal,* includes the direct labor of employees of the city government. Class 2000, *services—contractual,* includes all work performed for the city government by persons who are not employees of the city, the work involving both labor and the use of equipment or the furnishing of commodities under express or implied contract. Under class 3000—*commodities*—are included supplies, materials, and repair parts. Class 4000, *current charges,* covers those expenditures which may be contracted annually at the option of the city authorities. Class 5000, *current obligations,* sets up the fixed charges resulting from financial transactions previously entered into by the city authorities. Under class 6000 are *properties,* including lands, buildings, fixed improvements, and equipment which has an appreciable and calculable period of usefulness. Class 7000—*debt payments*—contains, of course, those expenditures for the redemption of the city's debt.

EXPENDITURE CLASSIFICATION

1000—*Services—Personal*
- *1100*—Salaries and wages regular
- *1200*—Salaries and wages temporary
- *1300*—Other compensations

2000—*Services—Contractual*
- 2100—Communication and transportation
  - *2110*—Postage
  - *2120*—Telephone and telegraph
  - *2130*—Freight and express
  - *2140*—Traveling expenses
  - *2150*—Hired horses and vehicles
- 2200—Subsistence, care and support
  - *2210*—Subsistence and support of persons
  - *2220*—Subsistence and care of animals
  - *2230*—Storage and care of vehicles
- 2300—Printing, binding and advertising
  - *2310*—Printing
  - *2320*—Typewriting and mimeographing
  - *2330*—Binding
  - *2340*—Advertising

(6) current obligations, (7) properties, and (8) debt payments. The "commodities" class is merely divided into two classes, supplies and materials.

2000—*Services—Contractual (Continued)*
- *2350*—Photographing and blue-printing
- *2360*—Publication of notices

2400—Heat, light, power and water
- *2410*—Furnishing heat
- *2420*—Furnishing light and power
- *2430*—Furnishing water

2500—Repairs
- *2510*—Repairs to equipment
- *2520*—Repairs to buildings and other structures

2600—Janitorial, cleaning and other services

3000—*Commodities*

3100—Supplies
- *3110*—Office
- 3120—Food
  - *3121*—Food for persons
  - *3122*—Food for animals
- 3130—Fuel and lubricants
  - *3131*—Coal
  - *3132*—Other fuels
  - *3133*—Lubricating oils
- 3140—Institutional
  - *3141*—Clothing and household
  - *3142*—Laundry and cleaning
  - *3143*—Refrigerating
  - *3144*—Medical and surgical
  - *3145*—General
- *3150*—School and recreational
- *3160*—Farm and dairy
- *3170*—Laboratory
- *3180*—General

3200—Materials
- *3210*—Building
- *3220*—Road
- *3230*—General

3300—Repairs
- *3310*—Parts of equipment
- *3320*—Parts of structures

4000—*Current Charges*

4100—Rents
- *4110*—Of buildings and offices
- *4120*—Of equipment

4200—Insurance
- *4210*—On buildings and structures
- *4220*—On stores
- *4230*—On equipment
- *4240*—Official bonds
- *4250*—Employers' liability

4300—Refunds, awards and indemnities

4400—Registrations and subscriptions

5000—*Current Obligations*

5100—Interest

5200—Pensions and retirements

5300—Grants and subsidies

5400—Taxes

6000—*Properties*
- 6100—Equipment
  - *6110*—Office
  - *6120*—Institutional
  - *6130*—School
  - *6140*—Motor vehicles
  - *6150*—Farm
  - *6160*—Live stock
  - *6170*—General
- 6200—Buildings and improvements
  - *6210*—Buildings and fixed equipment
  - *6220*—Walks and pavements
  - *6230*—Sewers and drains
  - *6240*—Roads
  - *6250*—Bridges
  - *6260*—Trees and shrubs
- *6300*—Land

7000—*Debt Payments*
- *7100*—Serial bonds
- *7200*—Sinking fund installments

This classification can be easily expanded or contracted to fit the accounting requirements of any city government. The seven main classes should not, however, be changed. In most instances it will not be necessary to make any changes in the first subclasses. Additions may be made to the second and third subclasses by expanding the code numbers. The titles of these subclasses are merely suggestive of what may be included under each subheading and are not supposed to be rigidly followed. The italicized code numbers precede those titles that should appear in the accounts. The code numbers may be used on the vouchers and in entering the accounts, thus saving the time of writing a description. Any one of the code numbers, although separated from all the others, indicates clearly the class and subclasses to which the item belongs. Take for example, 3131—coal. The first digit to the left indicates the main class to which the item belongs, the second digit the subclass to which it belongs, and so on. The department to which the expenditure belongs may be indicated by preceding the code number by one, two, or three capital letters. If the item noted above is purchased for the sewer division of the depart-

ment of public works, the code may be written thus: PWS3131. If the same item is purchased by the fire division of the department of public safety, the code may be written thus: PSF3131.

The main purpose of the character classification in budget making is to serve as an index to the method of financing the expenditures. Under this classification expenditures are usually divided into four groups, namely, (1) current expenses, (2) fixed charges, (3) acquisition of property, and (4) redemption of debt. The first group is sometimes subdivided into current expenses for administration, for operation, and for maintenance. The last two groups are often referred to as capital outlays. In the preceding expenditure classification, the first four main classes, namely, services—personal, services—contractual, commodities, and current charges, are included under current expenses. The last three main classes, namely, current obligations, properties, and debt payments, correspond respectively to fixed charges, acquisition of property, and debt redemption under the character classification. Hence, the character classification may be made a part of the other classification by merely bearing this in mind. In the financing of the different character groups, the first two groups should ordinarily be met from current revenues and should not be deferred if a sound fiscal policy is to be maintained. The third group may be met from current revenues, or from borrowings. Payment by means of special assessments or bond issues is permissible for the acquisition of property which confers a benefit or constitutes a capital asset. Part of the cost may be handed over in this way to those directly benefited or to those who later enjoy the use of the property. The last group is usually met out of current revenues; however, bonds are sometimes refunded when due and not paid.

The fund classification is applicable both to expendi-

tures and to income. When money comes into the city treasury, it is placed to the credit of certain funds, and when expenditures are made, these funds are drawn upon in making payment. A fund ordinarily means a sum of money set aside to meet an expenditure; there are usually certain legal restrictions thrown around it as to the purposes for which it may be expended. Funds are classified in a broad sense according to their (1) ownership, (2) authority for establishment, (3) availability for use, and (4) sources of increment.

The ownership of funds may be either public or private. Public funds belong to the government and are used for public purposes. Private funds are held by the government as an agent and are either used for private purposes or returned to their owners. They consist of cash derived from such sources as the following: retained percentages on contracts; deposits to guarantee fulfillment of contracts, to insure return of borrowed government property, or to insure restoration of streets; cash found on deceased persons; and cash received for safekeeping from prisoners or inmates of institutions. While the city government may hold these funds in trust or custody, they do not enter into the budget. In budget making, we are therefore concerned only with those funds of public ownership.

The authority for establishing, likewise the authority for abolishing, a public fund may come through the state legislature, through the city council, through some contractual agreement, or through executive order. This, however, does not especially concern us in budget making. If a city should have a large number of funds established through different authorities, these would tend to complicate the accounting system and at the same time to hamper the financial planning. As will be pointed out later, the fewer funds a city has the better.

The availability of public funds directly concerns

budget making and especially the expenditure side of the budget. From the point of view of availability, municipal funds fall into four groups, namely, (1) expendable funds, (2) working capital funds, (3) endowment funds, and (4) suspense funds. For budget making purposes, it is necessary to divide the expendable funds into three classes: the general fund, special expendable funds, and sinking funds. The general fund is expendable for any purpose to which the city council may wish to apply it. It is the unrestricted fund of the city government so far as expenditure is concerned. It is the one fund that can be budgeted freely, and that can be drawn upon to replenish other funds. Usually the bulk of the city's income goes into this fund. The special expendable funds include expense funds, capital funds (loan or bond funds), local improvement funds (special assessment funds), and pension funds. These funds, sometimes called "special funds," are all more or less restricted as to the use that may be made of them by the city council. They are established for a specific expenditure or class of expenditures. In preparing the budget these restrictions must always be taken into consideration. Some of these funds are generally constituted by setting them aside from the general fund, and therefore reducing the size of it. While sinking funds are special expendable funds, they are commonly required by law to be held separate from all other funds in the treasury. Since they are set aside for the redemption of bonds, they are regarded from the budget standpoint as a separate class of funds. Working capital funds are usually called "revolving funds." They are commonly used for institutional or manufacturing purposes and are frequently replenished from receipts of sales or transfers from other funds. Only the earnings of an endowment fund are expendable; the principal of any such fund must remain intact. Undistributed receipts in the city treasury are

sometimes known as suspense funds; these receipts immediately lose the characteristic of "suspense" when distributed to other funds, it being only a transitory condition.

A classification of public funds for budget making purposes should be as follows:

1—General fund
2—Special expendable funds
  a—Expense funds
  b—Capital funds
  c—Local improvement funds
  d—Pension funds
  e—Other expendable funds
3—Sinking funds
4—Working capital funds
5—Endowment funds

It is desirable to have as few funds as possible, especially of the special expendable type. When bonds are sold the proceeds are usually set aside as a special expendable fund. This separates the bond money from the other money in the city accounts and insures that it will be spent for the purposes for which the bonds are issued. The physical separation of this cash according to funds is not, however, absolutely necessary, if a careful budget plan is followed and accounting control is established. When long term bonds, retired through sinking funds, rather than serial bonds are issued by the city authorities, it is necessary to set up and maintain sinking funds from which to pay these bonds.

Special mill levies are very often authorized by city councils, the resources of which constitute a special expendable fund and go to pay the current expenses of some function of the city government. Such levies usually work against comprehensive budget planning, since they are equivalent to special appropriations and are seldom taken into account in the budget plan.[1] They should not be made. A general tax levy should cover all the

[1] See above, page 48.

needs of the city government, with the possible exception of sinking fund requirements, and the proceeds from this levy should go into the general fund.

Income Classification

Income may be defined for the purposes of this discussion as all the resources which the city authorities are empowered to expend for municipal purposes, except temporary loans incurred in anticipation of the collection of taxes and special assessments. It is commonly classified by (1) funds, (2) sources, and (3) collecting agencies. The fund classification, discussed above under expenditures, is likewise applicable to income. The importance of analyzing income, as well as expenditures, by funds is apparent from the budget making standpoint. The city council should know the extent to which funding provisions restrict the use of moneys coming into the city treasury. Such provisions account for the fact that one fund may have more money than is required to meet its obligations, while another fund may be short of money and compelled to borrow from other fund surpluses.

The proper classification of income by sources is important from the standpoint of budget planning. City authorities generally have given very little thought to working out a consistent classification of income based upon sources.[1] Such a classification is of primary value in tabulating municipal income. Although sources of increment were mentioned above under the general discussion of funds, classification by such sources was not discussed there because it applies to the income side of the budget.

The accompanying classification, covering the sources

[1] The classification most generally used is the one of municipal receipts prepared by the United States Bureau of the Census for the compilation of its *Financial Statistics of Cities.*

of municipal income, is suggested as being both logical and practical.

INCOME CLASSIFICATION

1—*Revenues*
- 11—Taxes
  - 111—General property (specify)
  - 112—Poll
  - 113—Income
  - 114—Business (specify)
  - 115—Inheritance
  - 116—Other taxes
- 12—Rights and Privileges
  - 121—Licenses
    - 1211—Motor (specify)
    - 1212—Business (specify)
    - 1213—Professional (specify)
    - 1214—Miscellaneous (specify)
  - 122—Permits (specify)
  - 123—Franchises (specify utility)
  - 124—Concessions (specify)
  - 125—Rents (specify)
  - 126—Royalties (specify)
- 13—Services and Sales
  - 131—Fees
    - 1311—Legal services
    - 1312—Inspectional services
    - 1313—Technical services
    - 1314—Miscellaneous (specify)
  - 132—Sales of services and commodities (specify)
- 14—Interest and Premiums
  - 141—Interest (specify)
  - 142—Premiums (under certain conditions)[1]
  - 143—Discount
- 15—Fines and Forfeitures
  - 151—Fines
  - 152—Forfeitures
  - 153—Penalties
- 16—Grants and Donations
  - 161—Grants and subventions
  - 162—Donations and gifts
- 17—Pension Assessments
- 18—Special Assessments

2—*Borrowings*

3—*Sales of Properties*

Some explanation of each of the main classes and subclasses of this classification will aid in understanding it.

[1] See below, page 492.

Revenues consist of the moneys coming into the city treasury under such conditions as to increase assets without increasing debt liabilities. Unlike borrowings, revenues produce a surplus that is expendable for the general purposes of the city government, subject, however, to whatever fund restrictions may exist. The proceeds from the sales of lands, buildings, or equipment, do not constitute revenues, since capital assets are decreased by such sales. The scope of the first class of revenues, namely, taxes, is indicated by the subclasses. In general, taxes are compulsory contributions to the support of the government that are levied at regular intervals upon persons, properties, and businesses. The subclasses under the second class of revenues—rights and privileges—are less easily defined. The difference between licenses and permits is one largely of degree. A license allows the exercise of certain *continuing* acts or rights. A permit allows the exercise of certain *temporary* or *specific* acts or rights. Franchises are privileges that permit the continuing use of property, such as city streets, and include the element of regulation. Concessions are privileges granted with respect to special rights or conditions that arise out of the use of property and differ from licenses and permits in that they have a monopolistic value. However, the money derived from them, unlike taxes, does not represent compulsory payment. Rents are the return for the use or possession of lands and buildings belonging to the city government. Royalties represent a percentage of proceeds paid to the city government by persons permitted to develop, use, or operate any property or right belonging to it. Under the third class of revenues—services and sales—fees represent payment for various services rendered by the city government. The proceeds derived from operations of a commercial nature are included under sales of services and commodities. The next four classes

of revenues, namely, interest and premiums, fines and forfeitures, grants and donations, and pension assessments, are self-explanatory, at least, sufficiently so for the purposes of this discussion.

Something should be said about special assessments as a class of revenues. Special assessments are levied by the city government upon property adjacent to or in the vicinity of an improvement to reimburse the government for all or part of the cost of the improvement. Such assessments are also levied to meet the cost of certain services performed by the city government. Special assessments are generally made upon the theory that benefit accrues from an improvement or service to the property upon which the assessment is laid. In other words, it is assumed that the value of the property is enhanced to the amount of the assessment, if not more. Some able accountants have insisted that such assessments should not be classified as revenues.[1] The reason for excluding special assessments from revenues is that "they represent the recovery of particular expenditures." This may be a sufficient reason from the accounting standpoint, but it does not square with economic facts. Special assessments are being used to an increasing degree by city governments in the financing of public improvements and certain services. To this extent special assessments may be considered as reducing the burden of general property taxes. Instead of the city as a whole bearing the cost of an improvement or service, only that part of the city bears the cost (or a large part of the cost) which is most benefited by the improvement or service. In those cities where tax limits exist under state legislation, city authorities show more and more of a tendency to transfer certain governmental costs from the general tax levy to special assess-

[1] See Francis Oakey, *Principles of Government Accounting and Reporting*, pp. 91-94, 287-293.

ment. Special assessments, therefore, serve to permit a certain leeway in meeting the growing demands of city governments where the general tax rate has reached the upper limit. In such cases, special assessments are truly of the nature of revenues, and the fact that the city government may advance funds to carry on work before collecting assessments does not alter the general character of the assessments. The United States Bureau of the Census appears to have taken this point of view when it included special assessments in its classification of revenues.

All revenues, except pension assessments and special assessments, usually go into the general fund of the city treasury unless otherwise specified; then they may go into other funds, as indicated in the fund classification outlined above. The bulk of the money available for general budget purposes in city governments is derived from the different classes of revenues, and largely from the first class—taxes. It will be noted that the number of classes under revenues has been reduced to a minimum by combining all of those sources that are related. Escheats are not included among the revenues of city governments, since they belong especially to state governments.[1]

It may be well to explain briefly what is comprehended in the main classes of income other than revenues. Borrowings are moneys derived from the sale of long term bonds. Temporary loans and special assessment bonds are not included in this class. Borrowings result in the creation of liabilities in the form of debt obligations. Proceeds from the sales of properties are the moneys derived from the sale of lands, buildings, or equipment, and consequently reduce capital assets. Receipts ob-

[1] Some ten or twelve years ago the United States Bureau of the Census included in its classification of municipal revenues a class called "escheats." However, the moneys reported by the cities under this class were not, strictly speaking, escheats.

tained from the sales of properties should be used in defraying the cost of acquiring such properties; that is, if bonds are outstanding, they should be retired or provisions made for their retirement out of the receipts thus obtained. Any excess of such receipts may then be used for general purposes, except that such excess, when very large and hence likely to upset the continuity of the tax rate, should not be turned into revenue all at once. Moneys obtained under excess condemnation proceedings should be included in this latter class. Such moneys, accruing from the sale or lease of condemned property not used in an improvement may go to pay the cost of the improvement, or for general purposes in case they exceed the cost. In other words, any excess over the cost may become revenue.

The classification of income, particularly revenues, by collecting agencies has been used by a number of city authorities; but it is not useful in budget making, and it is not especially helpful in accounting. If the financial organization of the city government is properly arranged, most of the revenues and receipts will be collected directly by the treasury bureau or office. This classification is, therefore, of little value.

Essential Classifications

The matter of classification both of expenditures and of income may be briefly summarized. The *expenditure* classification, outlined above, shows the services, commodities, properties, charges, and obligations, so arranged as to indicate the character of the expenditure from the point of view of the means of financing. This classification should be used in conjunction with the organization units, so as to establish responsibility for expenditures. A functional classification may be used, as has been suggested, to supplement the information furnished by the above classification. The *income* classification, pre-

viously outlined, shows the sources from which the revenues and receipts of the city government come. The *fund* classification sets forth the nature of the funds into which the revenues and receipts go and from which payments are made. These are the essential classifications required both in budget making and in accounting.

The Budget Estimates and Supporting Data

Budget making authorities should use uniform estimate blanks in gathering the information for the preparation of the budget. The use of such blanks permits carbon copies to be made at the time the budget estimates are prepared. These copies can be bound up in sets and are useful in the review and revision of the estimates.

Many cities use uniform budget estimate blanks; but many do not. In the latter cities the estimates are submitted on letterheads and various sizes of plain paper. This, for example, was recently the practice in New Orleans. Only one copy of the estimates was submitted, and it contained very little detailed information and practically no supporting data to the requests. Because of the varying sizes of paper used, the estimates were not bound together for use, but were folded like legal documents and the name of the agency making the request was written on the outside.

Expenditure Estimate Blanks

While uniform estimate blanks should be used by all city governments in preparing the budget, the general form of these blanks may be varied for cities of different sizes. Small cities and towns may use a single estimate form to advantage, the different items being entered in the order of the expenditure classification and summarized at the end of the last sheet of the form. Where a single estimate form is used, it should be so arranged as to show considerable detailed information especially

concerning salaried positions. The expenditures for each of the two years immediately preceding the year to be budgeted should be shown on the estimates. This information has some value for comparative purposes. It shows the trend of expenditures for the various agencies of the city government, but it should not be regarded as indicative of the value of the work of such agencies. Other means, such as cost data and compiled facts concerning results, must be found to determine accomplishments. These should be supplied, wherever possible, in support of the information contained on the estimate blanks.

Only two expenditure estimate forms are used by the city of Boston. The entire expenditure classification is printed in the left hand column of the first form and the various departments and institutions are required to put the total amounts needed in a column after each item of the classification for which a request is made. The second form supports the personal service items on the first form and the departments are required to give on this form a complete list of all employees. The first form serves as a recapitulation sheet as well as an estimate form. It may be criticised on this ground, since it does not contain enough detailed information. It does, however, show the expenditures for each of the three years previous to the year to be budgeted.

Three estimate forms should be sufficient to outline the expenditure needs of the departments and institutions in a city of 30,000 to 100,000 population. These forms should be a convenient size, say sixteen inches wide by twenty inches long, so they can be filled out by using a wide carriage typewriter. The first one of these forms should be for personal services. It should be set up according to the accompanying Form A (Figure 2). In case an employee of the city government receives commutation or maintenance in addition to salary, this should

Form A

CITY OF .....

Sheet No. ....

EXPENDITURE ESTIMATES FOR THE FISCAL YEAR 19..

Use this form for

1000—Personal Services

Department .....

Bureau or Division .....

Item No.	Code No.	Classification and Title of Position	Name of Incumbent, or Specify "Vacant" or "New Position"	Law or Ordinance Fixing Salary	Compensation for Previous Year	Compensation for Current Year	Compensation Requested for Budget Year	Allowance by Budget-Making Authority	Memo. (Do not write in this space)
1	2	3	4	5	6	7	8	9	10

FIGURE 2. Budget Estimate Form—Personal Services.

be indicated on the estimate form or on a supporting sheet, using the item number on the estimate form as a reference key. When estimating the amounts needed for labor or irregular employees, only the number of the employees and the days required should be shown in column 4 of Form A. All new positions should be specified in this column.

The second form should be used for classes 2000 to 6000 of the expenditure classification previously outlined. It should follow the arrangement of the accompanying Form B (Figure 3). In the case of classes 4000 and 5000, units and unit prices, of course, cannot be shown, so these columns are left blank in filling out the form for items under these classes. The larger city governments may find it advisable to have additional forms for the 6000 class, namely, properties. Where considerable expenditure is made for properties, a form for equipment, another form for buildings and improvements, and a third form for land may be used to advantage.[1] Of course, it is to be understood that the information furnished on these supplementary estimate forms should, when such forms are not used, be supplied as supporting information to the shorter estimate Form B. This can easily be done where there are only a few purchases under the 6000 class.

The purpose of the recapitulation form is to enable the budget estimates and supporting information of each organization unit to be summarized on a single sheet. The arrangement of this form is shown on the accompanying Form C (Figure 4). The estimates of the different bureaus or divisions constituting each department, or the institutions under each department, should be summarized separately according to the main classes of the expenditure classification, and these in turn should be

[1] See A. E. Buck, *Budget Making*, pp. 77, 80, 84, for suggested estimate forms for equipment, buildings and improvements, and land.

Form B

CITY OF .....

Sheet No. ....

EXPENDITURE ESTIMATES FOR THE FISCAL YEAR 19..

Use this form for
2000—**Contractual Services**
3000—**Commodities**
4000—**Current Charges**
5000—**Current Obligations**
6000—**Properties**

Department .....

Bureau or Division .....

Item No.	Code No.	Classification, Specifying Commodity or Purpose	Expenditure for Previous Year	Estimated Expenditure for Current Year	Request for Budget Year			Allowance by Budget-Making Authority	Memo. (Do not write in this space)
					Number of Units	Price per Unit	Amount		
1	2	3	4	5	6	7	8	9	10

FIGURE 3. Budget Estimate Form—Other than Personal Services.

summarized for the whole department. These summaries should be made on Form C.

Brief instructions for the preparation of the estimates should accompany the forms. In fact, it may be advisable to print such instructions in the caption or on the back of each form. It is important that the spending agencies understand just how the budget information is to be filled in on the estimate blanks. Otherwise, the estimates may not be correctly made out and may have to be returned to the spending agencies to be made over. In a few cities this is avoided by having the controller, or other chief accounting officer, make up the estimate blanks as to items and fill in past expenditures before these blanks are sent to the spending agencies. These agencies then fill out only the request columns and return the estimates. The desirability of this procedure is discussed later.[1]

Supporting Expenditure Data

Uniform estimate sheets cannot be made to contain all the information needed in budget making. It is necessary to have certain supporting data. These cover a wide range. There should be complete explanations of all requests that are out of the ordinary. Requests for buildings should be accompanied by the architect's estimates, blue prints, and specifications. In adding a new building to an institutional plant, a complete plan of the grounds should be furnished showing exactly how it will fit into the general scheme when completed. In the construction or resurfacing of streets, a plan of the city should be furnished showing just where the work is to be done and the rate at which it is to be finished. Requests for appropriations to purchase land should be supported by a full description of the land and a statement of the use that is to be made of it.

[1] See below, page 90.

Form C | CITY OF ..... | Sheet No. ....

EXPENDITURE ESTIMATES FOR THE FISCAL YEAR 19..

Recapitulation

Date Filed: ..... Department .....

Approved: ..... Bureau or Division .....

Name of Responsible Officer

✓	Classification, According to Main Classes	Expenditures for Previous Year	Estimated Expenditures for Current Year	Requests for Budget Year	Allowance by Budget-Making Authority	Memo. (Do not write in this space)
1	2	3	4	5	6	7

FIGURE 4. Budget Estimate Form—Recapitulation.

Per capita costs should be furnished with the estimates of all city institutions. Complete figures should be given on the production and cost of operation of all institutional, agricultural and shop industries. Where services are conducted on a pay basis in connection with departments and institutions, these should furnish information to show whether or not they are self-supporting.

Complete information should be furnished on the operation of all municipally owned utilities. The charges for the services of such agencies are generally fixed at rates which will make them self-sustaining. Figures should be furnished to show if this is the case. Unit costs of operation not only for utilities but for other agencies of the city government are of assistance in budget making.

While municipal debt requirements do not relate to the estimates of the various spending agencies, they should have a very important place in the city budget as a whole. Such requirements should be calculated by the chief financial officer of the city government and turned over to the budget making authority. Estimates of the amounts needed for sinking fund installments, serial bond redemption, and interest charges should be carefully calculated and properly summarized for the budget.

The work program is valuable in making estimates since it sets forth the cost of the different activities in each department.[1] At the present time its value, where it happens to be used, is largely administrative. It has not been applied to any extent as an aid to the determination of fiscal policies. As has already been pointed out, the needs of departments and agencies should be expressed in terms of cost of activities as well as in terms of services and things to be purchased. The total amount of appropriations needed in either case for a certain de-

[1] See Chapter IV for a discussion of the work program, pp. 104-105.

partment would be the same, but the different methods of expressing the requirements would enable the city council to check one against the other by comparison. The work program of the current year may be used to advantage in budget making by comparing it with the appropriations allowed at the beginning of that year. This should show the relation between what has actually happened in making the expenditures of the fiscal year and what was contemplated in the budget when it was prepared and adopted.[1]

The information supplied with the budget estimates should, if possible, go beyond the stage of operation to the actual accomplishments of the service. A particular service may be performed satisfactorily by a department or agency of the city government, and yet the community may be getting nothing in return for the expenditure made in carrying on the service. All the important facts that can be gathered with reference to the results of municipal services would undoubtedly be a great aid in deciding upon the detailed proposals of the budget. A method of bringing these facts together and presenting them in systematic form along with the other budget information should be developed.

Estimates of Revenues

The chief financial officer of the city government should prepare the estimates of revenues. This method of preparation assumes that all moneys belonging to the city government are collected and deposited in the city treasury. The revenue estimates should be carefully made, since they largely determine the amount of money to be raised through the general tax levy. The estimates of revenues from sources other than the general property tax should not be more than 10 per cent above or below the actual collections. When, under normal conditions,

[1] This is graphically presented below on page 232.

revenue estimates vary considerably from the collections later made, it indicates either that proper care has not been used in making the estimates or that the officials responsible for them have resorted to wilful misrepresentation. High estimates are sometimes intentionally made to keep the tax rate down. This usually occurs in the election years when the artificially lowered tax rates constitute distinct political assets for the party in power. Such estimates are one of the chief causes of deficits in the funds of city governments. Low estimates are intentionally made to provide more money for expenditures where tax rates are not particularly pressing. Great care should be taken to avoid making revenue estimates that are too high or too low. Such estimates represent bad financial planning and in time shake the public confidence.

Under existing legal provisions, certain departments and institutions in some cities are permitted to retain and expend the moneys which they collect. The situation thus created militates against a sound budget procedure, but it is usually beyond the power of the city authorities to correct. In such cases, however, complete estimates of revenues should be furnished by these agencies to the budget making authority. Such estimates should be made on a special form, and the revenues should be classified according to the income classification previously outlined. These revenues should be deducted from the total expenditure requirements of the department or institution and the balance appropriated out of the general treasury.

Subsidized Private Agencies

It is the practice in many cities to subsidize privately owned and operated institutions and agencies, which are expected to render certain services to the community in return for the aid thus given. For example, the city

government of New Orleans recently appropriated varying sums of money to more than fifty private institutions and agencies. The authorities in many municipalities have questioned the wisdom of making such appropriations and have restricted the use of public funds for such purposes. Generally speaking, city governments should not aid private institutions and agencies. Government aid is justified only where much needed and satisfactory service is rendered in return for the money appropriated to such private agencies. If the service is worth doing and the city government can arrange to perform it through one of its own agencies, then this method should be followed. All private agencies receiving subsidies from the city government should be required to report in full the sources of their income and the distribution of their expenditures.

The Budget Making Procedure

The budget making procedure includes the bringing together of the budget estimates, the review and revision of these estimates, and the setting up of the budget document and supporting bills. This procedure presupposes some agency to carry it out. The general character of this agency, which has already been referred to as the budget making authority, may well be discussed at this point.

The Budget Making Authority

The budget making authority may be of the "executive" type, the "board" type, or the "legislative" type. The type of this authority is largely determined by the general organization of the city government, although the authority itself is usually constituted and established by law. An executive type of budget system, one in which the mayor or the manager prepares the budget plan and carries the plan into execution after it has been adopted

by the council, is not possible under any but the manager form or the centralized-mayor form of city government. Such a system cannot be carried out under the commission form or the decentralized mayor-council form. The board type or the legislative type is more appropriate for these forms of municipal government. Under the board type, the budget is prepared by a board or commission consisting of leading administrative officers, or of both administrative officers and representatives of the council. Under the legislative type, the budget is prepared by the council, usually through one of its committees. Neither of these types places definite responsibility on a single executive or administrative officer for carrying out the budget plan after it has been adopted by the council.[1]

It is now generally agreed among budget specialists and students of government that responsibility for the initial budget plan should rest upon the chief executive or administrative officer of the city government. If the existing organization of the city government is not such as to permit this officer to assume authority in budget making, then there is a strong reason for reorganization. Budget making by the executive has been emphasized in promoting the adoption of the manager form and the centralized mayor-council form of municipal government. In either case the executive is in direct control of the administrative work and is, therefore, in the proper position to do the financial planning. The manager form is usually somewhat more simple and direct in its operation than the mayor-council form. Under the latter form there is a possibility of deadlocks between the mayor and the council over the budget plan, which does not exist under the other form.

In a number of cities—many of them large cities—the budget is prepared by a board of estimate, or, as it is

[1] See above, general discussion in Chapter II.

called in New York City, a board of estimate and apportionment. There are instances where such a board seems to work fairly well as a budget making agency. The main weakness of the arrangement, however, lies in the lack of unified control over the carrying out of the budget plan.

In a few cities, notably Chicago, a committee or agency of the council prepares the budget. The mayor has little or nothing to do with it until the appropriation ordinance is presented for his approval after having been voted by the council. In general, this method has not been conducive to careful budget planning.

From the standpoint of effective budget making and more particularly budgetary control, the commission form and the decentralized mayor-council form of city government are very weak. In neither of these forms is responsibility for the administration of city affairs centralized in one individual. Hence, no one is in a position to view the work of the city government as a whole, to determine the relative importance of the different activities, and to prepare a complete budget plan on this basis.

The Budget Staff Agency

In the preparation of the budget, the budget making authority, whether it be the mayor, the manager, a board, or a committee, should have the assistance of a staff agency. The most suitable staff agency for this purpose, as has been pointed out in Chapter II, is a properly organized department of finance in which all the essential budget information is brought together and classified.[1]

A few cities, notably New York, Detroit, and Boston, have created the office of budget director or commissioner, whose duty it is to bring together and scrutinize the estimates and other budget information and to pre-

[1] See above, pages 17-21.

sent these to the budget making authority for its recommendations. The director of the budget of New York City is appointed by the mayor and works in conjunction with a subcommittee of the board of estimate and apportionment.

Preparation of the Budget Estimates

The department of finance, or other budget staff agency, should secure all estimates and budget data. The necessary information relative to purchases and payments made by the government should be recorded in the department of finance currently as the expenditures are made. This makes it possible to fill out the estimate sheets with the items of expenditure for the past year and the current year before these sheets are sent out to the various spending departments and agencies. Of course, the expenditures for the current year have usually not all been made at the time the sheets are sent out, but an estimate for that year can be made on the basis of the expenditures of past months. Where the system of accounting is centralized, this can be more easily done by the department of finance than by the other departments. This method of making out the estimates insures uniformity in the information returned. Supporting information on operating costs and accomplishments should come from the records and cost accounts maintained by each spending agency. It may be possible in the future to work out a system under which these records can be centralized in the department of finance. However, at the present time only the expenditure records necessary for the control of the appropriations and the distribution of expenses are kept in the department of finance.

Departmental and institutional heads should be impressed with the fact that the preparation of the budget estimates is important. They should understand that

they may be called upon to explain each item in their requests before it is allowed by the budget making authority and that they may be quizzed by the city council before the appropriation is made. This will help to prevent the submission of "padded" estimates to the budget making authority.

The correct procedure in the preparation of the estimates is for the head of each bureau, division, or institution to make up estimates for his unit and to turn these over to the departmental head. The latter should go over the estimates for each unit in his department to see that the amounts requested are in harmony with the general departmental budget as he conceives it, that the requests of the various units are not out of balance with each other, and that the needs of some of the activities of the department are not being magnified while those of other more important activities are being neglected. The departmental head should assume responsibility for the estimates of the department and should adjust the estimates of the subordinate units so as to make them fit into his budget plan for the whole department. He should prepare a general summary of all the estimates for the department upon a recapitulation estimate blank, indicating his approval of the requests. He should then submit all estimates and supporting data to the department of finance or other budget staff agency.

When Should the Estimates Be Filed?

The date upon which the estimates should be filed is governed largely by the date of the adoption of the budget and the passage of the appropriation ordinance. The budget should be adopted just prior to the beginning of the fiscal year. When the fiscal year begins on January 1, as it frequently does in cities, the budget should be adopted and the appropriation bill passed by the council in December. This necessitates preparing the estimates

during October. They should be in the hands of the budget staff agency early in November.

It is advisable to prepare the estimates as late in the fiscal year as possible. Of course, sufficient time must be allowed for legislative consideration and action on the budget before the beginning of the next fiscal year. When estimates are prepared late in the fiscal year, the financial information for the current year is more complete and the estimating is more exact owing to the nearness of the budget period. Some municipalities follow the practice of preparing the estimates directly after the beginning of the budget year, so as to have complete information on the expenditures of the year just closed. Any advantages that may come from having this information are usually far outweighed by the fact that two or three months of the budget year are gone before the budget is adopted and the city government has been running along during this time without any budget plan.

Consolidation, Review and Revision of the Estimates

When the estimates and supporting data have been brought together in the department of finance or other staff agency, the next step in the budgetary procedure is the consolidation of the estimates. This is largely a clerical matter. The estimates of all organization units in the city government, including all debt and miscellaneous requirements, are tabulated, thus getting a grand total of requests. This total is then compared with the total estimated means of financing, giving due consideration to the availability of moneys coming into the various funds. Having set up a tentative summary statement which exhibits the relationship between the proposed expenditures and the anticipated income of the city, the estimates are now ready for consideration by the mayor, or manager, or other budget making authority.

A satisfactory budget plan cannot be prepared with-

out painstaking review and revision of the departmental estimates by the budget making authority. Without this, the budget will be nothing more than a compilation of the estimates. The estimates are made up in the first place by individuals who are interested primarily in the work under their supervision and naturally regard this work as the most important that the city government is carrying on. Hence, it is necessary from the standpoint of the community that these estimates be scrutinized by a person who has a wide perspective and understanding of the needs of the city as a whole and can view the total demands for appropriations in the light of the income available to meet them. Obviously, the proper person to do this is the mayor or the manager. When responsibility for revision of the estimates looking toward a comprehensive budget plan is placed upon the mayor or the manager, it rests upon the same individual as does the responsibility for administering the affairs of the city government. No one should be better acquainted with the financial requirements of the government than the chief administrator.

In reviewing the estimates it may be necessary to make considerable reduction in them so as to balance the total proposed expenditures with the anticipated income of the government, or it may be desirable to leave the estimates as they stand and to find new or increased sources of income as a means of meeting the larger expenditures. This is the job of the budget maker. If he finds that the estimates do not preserve a proper balance in the relative importance of departmental work, he should make the necessary adjustments by revisions. In making these adjustments he should, of course, have conferences with departmental heads and others interested in the estimates. The principal administrative officers should have a full understanding of all revisions that are made in the estimates, so they will be able, if called upon, to de-

fend the budget proposals before the members of the city council.

The budget maker should have the help of the department of finance or other staff agency in revising the estimates. In the larger cities he should have the assistance of one or more persons assigned by that department to make investigations and study the different problems bearing on the financing of the city government. Studies of a general nature might profitably extend to an economic survey of the community, covering the wealth, industries, resources, and taxable properties within the city. All of these things have a distinct relation to the general fiscal policy, especially when considered over a period of years. Eventually we can expect that a statement of the economic and commercial conditions existing within the city will find a place in its budget.

Setting Up the Budget for the Council

Following the revision of the consolidated estimates, the budget making authorities of several cities prepare and publish a tentative budget and hold public hearings on it. Where such authorities not only prepare but practically enact the budget, public hearings may be held to an advantage at this point in the procedure. This is true in the case of the board of estimate and apportionment of New York City. In most cities, however, public hearings can be held to better advantage by the council. This is especially true in the manager governed cities. The manager should plan the financial needs of the city government as he sees them. When his budget has been presented to the council, it should examine the proposals carefully and hold public hearings on them.

When the consolidated estimates of expenditures and of income have been finally revised and the detailed allowances of the budget maker have been inserted on the expenditure estimates, then comes the work of summariz-

ing the estimates and of casting all the budget data into the form of a clear, concise, and understandable document. Such a document has been described above.

Upon completion the budget document is transmitted by the budget making authority to the city council. Such bills as may be drafted to carry out the budget plan usually accompany the document. Often these bills are included in the budget document. This is not objectionable, so long as the bills are put in a separate section at the end. Frequently, a detailed appropriation bill constitutes the entire budget, a practice which cannot be in anywise commended. In many cities the budget bills are prepared by a committee of the council after the budget has been received from the manager or the mayor. It would greatly assist the council in its consideration of the financial plan if these bills were prepared and submitted by the budget maker along with the budget. Usually the budget is printed in pamphlet form at the time it is submitted to the council, or soon thereafter, and copies of it are made available to the public.

Consideration and Action on the Budget by the Council

The organization of the city council is important from the standpoint of budget making. The small unicameral council, the members of which are not directly responsible for the administrative work, seems to be the most satisfactory type for budget making purposes. This type of council exists in practically all of the manager cities and in many of the strong mayor cities, such as, Boston, Pittsburgh, and Detroit. The bicameral council is almost a thing of the past in city governments.

The members of the unicameral council are usually elected at large or from districts within the city. Members chosen in either of these ways are not always representative of the various interests in the community. As a possible means of making them so, proportional repre-

sentation has been applied in a few cities. One of the latest experiments of this kind is in Cleveland, Ohio, under the city manager form of government.[1] The city area is divided into four districts, electing by proportional representation five, six, seven, and seven members. It is argued that the main community interests—political, social, and economic—in each district will be represented by one or more members according to their relative strength. The dominant characteristic of the first council elected under this system in 1923 appeared to be political. There were fourteen Republicans, six Democrats and five Independents.[2] The Republicans controlled the organization of the body. Proportional representation did not disrupt party control in this case, although it seemed to have weakened it. But greater public interest seems to attach to the work of the council than before for many years. Only a few people used to attend the council meetings; now, over 500 regularly attend these meetings. This increased public interest is largely due to the presence of the manager and his department heads upon the council floor and to the criticisms by an independent minority in the council, a result that is especially desirable in budget making.

Procedure in Considering the Budget

The budget and accompanying bills should be submitted to the city council in time to permit of consideration and adoption before the beginning of the fiscal year. In most cities from three to six weeks are required for proper action on the budget by the council.

Practically every city council has a committee to which all fiscal matters are referred before the council as a

[1] Cincinnati, Ohio, which became a manager-governed city on January 1, 1926, has a council of nine members elected at large by proportional representation.

[2] Political lines were practically the same in the council elected in November, 1925.

whole takes them up for consideration. This committee is ordinarily called the finance committee or the ways and means committee. The usual practice is to refer the budget to this committee immediately following its submission to the council. The members of the committee go over the budget carefully at several sessions, often holding public hearings on it or making investigations of the requests presented in it, and then report on it to the council as a body. The members of the council who are not on the committee generally accept the committee's report at face value and vote to pass the budget as recommended by the committee. This is a weakness in the budget procedure of the council, especially in cities with the mayor-council form of government, that should be corrected. The consideration of the budget plan and the publicity given to the budget requirements by the city council are entirely too limited.

In order to meet this situation some cities have recently provided for a more or less open procedure in the consideration of the budget and the supporting fiscal measures. In Cleveland, as noted above, public interest is stimulated by bringing the manager and his department heads into the council where they may be quizzed by members of the council or they may speak on any subject under discussion, although they may not vote on any measure. This procedure is especially effective in the consideration of the budget. It gives the minority or the opposition in the council an opportunity to find out about the details of the budget plan. By this procedure the public may also become informed. A discussion of the financial plan can thus be staged that has real news value. This method is a modification of the committee-of-the-whole procedure.

When the budget comes up for consideration in the council the chairman of the finance or the ways and means committee, or the presiding officer of the council, should

take the floor and explain the general fiscal policies outlined in the budget plan. Perhaps the mayor or the manager should do this, if the council is lacking in aggressive leadership. This oral explanation is known as the "budget speech," a term that has come to us from English budget practices. Such a speech leads to discussion, arouses public interest, and makes news for the papers. It, therefore, has value from the budget making standpoint.

Many cities have tried to encourage publicity by holding public hearings on the budget document. Some report fair success; others little or no public interest. This failure probably lies in the fact that public opinion is passive on most governmental matters until aroused, and no effort is made to arouse it. Public hearings on the budget are generally held on stated dates and in the most perfunctory manner. Such settings lack the dramatic elements that attract public attention. As a solution, a few cities have tried carrying the budget information directly to the people through meetings in different parts of the community. These meetings are held during the time the council is considering the budget. At them the mayor or the manager speaks on the fiscal policies set forth in the budget and invites questions and criticisms. Such meetings have seemed to stimulate public interest in the budget.

Passage of the Budget Bills

The council should discuss the budget requirements of each department or agency of the city government. The opinion of the members of the council should be ascertained immediately following this discussion as to the amount to be appropriated to each department or agency. When the discussion of the entire expenditure side of the budget has been concluded in this manner, then a total of the proposed appropriations for all departments and

agencies of the city government should be compared with the total anticipated income. After the necessary adjustments have been made to balance the proposed expenditures with the anticipated income, the council should then pass the appropriation bill and the revenue and borrowing measures which have also been adjusted to correspond with the budget plan as adopted by the council. This having been done, a copy of the budget ordinances should be sent immediately to the controller, who should set up the appropriation and other accounts on the proper books before the beginning of the fiscal year.

City councils are usually restricted in the action they may take on the budget. While some councils are permitted to increase the budget items as formulated and submitted by the budget making authorities, others may only decrease items. Even the power to increase is subject to certain limitations, such as the amount of estimated income. Where there is a separation of the policy executing and the policy determining powers of the city government, as in the mayor-council form of government, these limitations may be of a serious nature. If the mayor is the budget making authority and also has the power of veto over the appropriations adopted by the council, he may become practically the planning and the legislating agency so far as the budget is concerned. This is the case in Boston, where the power of the council to appropriate city funds is seriously curtailed. The mayor originates all proposals to spend money, and no expenditure proposal may be increased by the council. In case an item is reduced by the council, the mayor may veto the reduction.

Publicity—Budget Exhibits

After the appropriations have been made and the tax levy fixed, the city council or the chief administrative officer should issue a public statement. This statement

should show the final action of the council as affected by the executive veto, in case the veto is permitted and exercised. It should present a summary of the budget as finally adopted, and it should compare this with the general budget summary in the document previously presented to the council for its action, showing the changes that have been made in the process of discussion and adoption. This statement should be handed to all the newspapers in the city.

Another excellent means of stimulating public interest in the budget is through the medium of budget exhibits. So far, only a few cities have made use of such exhibits, notably New York City and Springfield, Massachusetts. These exhibits are usually set up periodically during the budget making period in the city hall or some other building that is convenient for the citizens to visit. They consist of maps, charts, diagrams, placards, samples, and so forth, that tell quickly and easily the story of where the city government gets its money, how it spends this money, and what it gets for it. It is possible now for the city authorities to produce motion picture films of the more important activities, showing just what work is being done by the city government. These films may be sent around the city to be shown in the different picture theaters. Such exhibits and pictures help the citizens to visualize and understand the work of the city government and are valuable means of civic education. The radio also has possibilities in this direction. New York City has recently installed a municipal broadcasting station to be used for the instruction and amusement of the public.

CHAPTER IV

BUDGETARY AND AUDITING CONTROL

The execution, or carrying out, of the budget plan requires continuous supervision on the part of the city's chief executive officer in conjunction with the accounting and auditing control established through the department of finance. The budget, as approved by the city council, should be closely adhered to throughout the period to which it applies, unless some extraordinary circumstances should arise making changes necessary. Budget planning means very little if this is not done. As the budget plan is being carried out, information should be recorded and classified by the department of finance for use in the preparation of the next budget. Careful fiscal supervision and auditing control should be established over both the receipts and the disbursements of the city government. There should be a continuous checking of the revenues and other receipts coming into the city treasury. At the same time the expenditures for all governmental purposes should be carefully audited to insure that they are being made in accordance with the budget plan and for value received.

Practices That Tend To Defeat Budgetary Control

Many city governments do not include the expenditures of all municipal agencies in the budget plan. Certain agencies are permitted to collect local revenues and to expend these without central budgetary supervision. This is often true in the case of schools and municipally owned utilities. In New Orleans, for example, the expenditures of many agencies, including the school board

and the sewerage and water board, are completely outside any budgetary control by the city council. Of more than $16,000,000 spent during 1921 by the various agencies of the city government, the council controlled through its budget only about $6,000,000. Under such conditions as these, the budget is not a controlling plan, and it is not possible to maintain the proper balance between the expenditures of the different agencies of the city government. Some agencies may spend more than their share of the total income of the city government; other agencies may be so hampered by lack of funds that they cannot operate effectively. It is of prime importance, as stated in the preceding chapter, that the budget plan should include all the agencies of the city government.

Overexpenditure of Appropriations

The expenditure side of the budget plan is not closely adhered to in many cities. The appropriations are not binding upon the spending officers. They may overexpend year after year without restraint. In Yonkers, New York, for example, the expenditures of the city departments and agencies exceeded the appropriations for each of the seven years prior to 1921 with the exception of one year. This excess was usually taken care of either by deferring the payment of bills from one fiscal period to the next or by using revenues which came into the city treasury in excess of the budget estimates. Usually the fiscal year ended with a deficit. In 1917 this deficit amounted to over $870,000 in a total budget of $4,500,000, or almost 20 per cent. Such conditions are the result largely of poor budgetary and auditing control.

Additional or Supplementary Appropriations

The practice among city councils of making additional or supplementary appropriations during the fiscal year

defeats in a large measure the budget plan. Such appropriations should not be made except to meet extraordinary situations. There is little use of adopting a budget plan if during the year additional appropriations are to be made by the council for purposes which should have been considered and included at the time the budget was made. Ordinarily, very little attention is given to the means of financing such appropriations when they are adopted. During 1923, the council of Charleston, South Carolina, authorized supplementary appropriations amounting in the aggregate to over $128,000. No additional revenue was provided to meet these appropriations. Revenue had been provided in March of that year to cover only the appropriations made at that time in the annual appropriation ordinance amounting to $1,382,700. The obvious result of such action on the part of the council is a deficit. To avoid such a condition the budget plan when once adopted must be binding alike upon the council and the administration.

Funds and Appropriations Not Under the Budget

Many cities have funds which are not under budgetary control. Certain agencies are authorized to make expenditures from these funds without any central fiscal supervision. An example of such a fund is the judicial expense fund of New Orleans, provided for in the state constitution. It consists of the fees collected by the clerk of the civil district court, the clerks of the first and second city courts, the register of conveyances, and the recorder of mortgages. The receipts of this fund amount to over $200,000 annually. The city department of finance has custody of this fund, but the expenditures from it are entirely controlled by the judges of the civil district court.

Continuing appropriations and other expenditure authorizations which are not brought into the annual bud-

get plan are objectionable from the standpoint of proper fiscal control. These should be avoided. In the event they are authorized by state laws, steps should be taken to bring about the repeal of such laws.

Methods of Budgetary Control

Budgetary control becomes largely an administrative matter as soon as the appropriations have been made by the council. The council's direct control over the spending of the appropriations should practically cease with the fixing of the maximum amount to be expended by each of the several departments and agencies and the placing of responsibility on the spending officers through the appropriation ordinance. The administration, before starting to carry out the budget plan for the fiscal year, should frame a work program for each department and agency of the city government. The lump-sum appropriations to each department or agency should then be distributed upon the basis of the work program and according to a system of executive allotments. Frequent reports should be made to the council on the progress of the work program and the adjustments that have been made in the allotments to meet changed conditions. The council should also be informed at quarterly intervals as to the sufficiency of funds in the treasury to meet the city's bills. At the end of the fiscal year all unencumbered appropriation balances should lapse into the surplus of the funds to which they belong, making a new appropriation necessary for further expenditure. These methods of budgetary control are considered more at length in the following discussion.

The Work Program

The work program is developed to a large extent after the appropriations have been authorized by the council.

Briefly, it is the allocation of the lump-sum appropriation made to a department for current operating expenses to the activities or working units of the department so that each of these will get its proper share of the appropriation. The work program should be prepared by the administrative head of each department or agency and it should be in line with the general fiscal policy determined by the council. This program should be reviewed by the chief administrative officer of the city government and approved by him before the department head proceeds with the work. It should be approved immediately preceding the beginning of the fiscal year to which it relates, and it should be subject to quarterly revisions, if necessary, during the year.

The work program is an effective means of avoiding detailed itemizations and restrictions in making appropriations and at the same time insures adequate fiscal control and information. When such a program is in force, the council does not have to prescribe in the appropriation ordinance the kinds of services and things to be bought, the conditions to govern contracts and purchases, and the uses to be made of the services and things acquired,—all of which more or less hamper the managing abilities of the administrative officers. The council may make an appropriation for current expenses to each department or agency in lump sum, thus permitting a high degree of flexibility in carrying out the budget plan. This does not curtail in the least the power and authority of the council in determining the fiscal policy of the city government. It simply means that after the council has once appropriated a sum of money to a department or agency and has defined the general policy to be followed in spending that sum of money, the further direction of the work thus provided for is an administrative matter and comes within the jurisdiction and control of administrative officers.

Executive Allotments

A system of executive allotments is necessary in order to carry out the work program in the most effective manner. Assuming that the council makes a lump-sum appropriation for the current operating expenses of each department, this appropriation should be divided among the four quarters of the fiscal year according to the work program. The allotments should be approved by the chief administrative officer of the city government and transmitted to the controller or other chief accounting officer. If the allotments are revised at the beginning of any quarter, the same procedure should be followed. Five or ten per cent of the total appropriation may be reserved at the beginning of the fiscal year to cover any contingencies that may arise during the year. Twenty-five per cent of this reserve may be regarded as belonging to each quarter, and this amount, or the remainder thereof, may be returned at the end of the quarter and applied to the regular expenditure purposes. In order to meet changing conditions, allotments made at the beginning of the fiscal year may be revised at the time of starting on the second, third, or fourth quarters of the year. This gives a certain flexibility to the plan of expenditures that cannot otherwise be secured.

A few cities have provided that one-twelfth of the money appropriated to a department for current operating expenses may be expended during each month, but this arrangement does not allow for fluctuations due to seasonal expenditures and unduly hampers administrative officers. Some cities are already making use of the executive allotment system, either with reference to the entire budget or as applied to individual departments.[1]

[1] Washington, D. C., has used the allotment system for several years, the appropriations allowed by Congress for the operation of the District functions being allotted by the commissioners on a quarterly basis according

This system, when coupled with a definite work program, is coming to be regarded as a desirable and effective means of budgetary control. It acts as a positive restriction on loose spending, including spending in excess of appropriations. If a shortage is apparent in the year's income, this system can be made to control the expenditures accordingly. Since the allotments are made by the departmental heads with the approval of the chief administrative officer, the city council is relieved of having to consider budget items during the year except when extraordinary situations may arise. Transfers of appropriations, involving the approval of the council, are not required, and the council is to a large extent freed from the apparent necessity and the temptation to make additional or supplementary appropriations during the year. Such appropriations are not needed under the allotment system. Thus one of the practices that results in defeating budgetary control in a great many city govments is avoided. Another advantage of the allotment system is the budgeting of each lump-sum appropriation just as the work to which it applies is begun, thus permitting the requirements to be scrutinized again when they may be more carefully determined than when they were presented in the budget. By requiring the administrative officers to make an allotment of amounts previously estimated, considerable reduction may sometimes be made in the estimated cost of the work because of changed conditions that were not anticipated when the budget estimates were prepared. Likewise, conditions that might under other methods result in an overexpenditure of the appropriation can be satisfactorily met.

to a definite expenditure program. Berkeley, California, has recently inaugurated a budgetary control system which operates by allotments. The allotments, however, are made upon a monthly rather than a quarterly basis. Individual departments of city governments sometimes operate on the allotment system; for example, the public works department of Montclair, New Jersey, has found allotments most effective in controlling its expenditures throughout the year.

An allotment system, based upon a work program and supported by cost data, gives the chief administrative officer the means whereby he can exercise effective control over the departments and agencies of the city government.

Maintaining Sufficient Fund Resources to Pay Bills

While it is quite important that the administrative head of the city government should constantly supervise the expenditures by means of a work program and a system of executive allotments, it is just as important that he should keep in touch with the cash resources of the city's funds and should maintain them as nearly as possible at a point where all bills can be paid promptly. In many cities taxes are not paid into the treasury until late in the fiscal year. As a result, the current expenditures made during the early part of the year must be met either from money borrowed in anticipation of taxes or from a cash balance carried over from the preceding year. There is always considerable interest expense attached to temporary loans; hence, they should be avoided where possible. It is not good business on the part of the city government to carry over a large surplus to meet bills during the early part of the fiscal year, because this necessitates taking the money from the taxpayers many months before it is needed. An adjustment of the dates of collecting taxes and other revenues to the expenditure needs of the fiscal year is highly desirable. Arrangements may be made by means of a budgetary or financial calendar so that revenues will be coming in at different times during the year in sufficient amounts to meet the current needs. If this cannot be done, then an effort should be made to reduce to a minimum the amount of temporary loans that may be required during the year.

Frequent Reports on Allotments and Fund Balances

Reports should be made by the controller to the chief administrative officer at frequent intervals respecting the allotments and the balances of the city's funds. In some of the manager cities such reports are made daily. In this way the administrative head is kept in constant touch with the financial condition of the city government. He is enabled by reason of these reports to exercise effective budgetary supervision at all times.[1]

A summary of such reports should be sent to the city council at the end of each quarter and at such other times as that body may demand it. At the same time this summary should be made public for the information of the citizens. Sending such a summary to the council keeps it informed as to the progress that is being made by the administration in carrying out the budget plan. It has been argued by some that the system under which the council authorizes transfers between itemized appropriations, when changes become necessary, is preferable to the executive allotment system of lump-sum appropriations, because the former system serves to keep the council more closely in touch with the financial operations of the city government. While the transfer system of itemized appropriations may bring the matters pertaining to expenditures more vividly before the council, it has certain serious disadvantages from the standpoint of budgetary control. The council is placed in a position where it is continually called upon to approve expenditure details, a matter that is purely administrative. At the same time, the way is opened up to the council to upset completely the original budget plan by making changes here and there in it during the year. This happens in many cities at the present time. Such situations, to a large extent, grow out of this practice of making

[1] See method of charting revenue and expenditure control, p. 234.

transfers, which permits the council constantly to tinker with the appropriations. If the council wants to know how the budget plan is being carried out, it should get its information not from tinkering with expenditure details but from comprehensive financial reports prepared by the administration.

Lapsing Unencumbered Appropriation Balances

It is important that all unencumbered appropriation balances should lapse at the end of the fiscal year into the surplus of the funds from which the appropriations were made. As explained later in this chapter, the auditing methods should provide for the encumbering of an appropriation by the controller whenever an order or a contract is approved by him. By this procedure the controller should know on the last day of the fiscal year just how much remains unencumbered in the different appropriations and therefore will not be expended. If this amount is reverted to the treasury, it augments the surplus and is a means of financing the budget for the next fiscal year. If the unencumbered balances are left available for future nonbudgeted expenditures rather than reverted, the effect upon the budget plan of the following year is practically the same as though additional or supplementary appropriations were made during that year.

General Scope of Auditing Control

There are two general types of auditing—periodic and current. The difference between these from the standpoint of results is this: periodic auditing is performed at the end of a given period and merely ascertains that transactions were or were not regular when made; current auditing is performed continuously from day to day and is the means of establishing control by which transactions that are not regular may be forestalled. The periodic audit is sometimes referred to as "locking the

barn door after the horse is stolen." However, this comparison somewhat understates its value, since such an audit does serve certain definite purposes.[1] Of course, it does not provide the means of current control, but this is not its object. Current auditing does establish control, since it requires all financial transactions to be audited before they are approved or disapproved and prior to the payment of all claims. Such control is the means of preventing loss of revenues or forestalling irregular expenditures, both of which may occur through illegal, dishonest or inaccurate financial transactions. This control is properly exercised by the financial officer, usually designated as controller.[2]

The current audit is sometimes called the continuous audit or the preaudit. The latter designation comes from the fact that the audit is made in time for the controller to take action before collections of cash can be withheld from the city treasury or irregular disbursements of cash made.

There are various means of performing the current audit. By the use of billing systems, financial stationery, and accounts of amounts to be collected, the controller can check the revenues and other receipts collected and deposited by collecting officers. This method enables him to know daily if such officers are collecting the taxes due the city government, if the amounts they collect from licenses, permits, fees, and sales are correct, if they are promptly depositing their collections in the city treasury, and so forth. Through contract and purchase order forms, advices of goods received, employment records, and accounts of appropriation balances and fund resources, the controller can check the expenditures incurred by the various agencies of the city government. He is in a position to know before a claim is paid if the

[1] These are pointed out later in this chapter. See below, page 141.
[2] See above, pages 19-21.

expenditure involved is covered by an appropriation, if it is otherwise legal, and if the city has received what it is asked to pay for. Even before the purchase order or contract is issued, he can be assured if there is a sufficient appropriation balance to meet the expenditure when incurred.

Prevention of defalcations and illegal use of moneys, however, are not the sole concern of auditing control. As a matter of fact, many cities probably lose more at the present time through careless administration than through graft or deliberate dishonesty. The more important, although not the exclusive, concern of auditing control, therefore, is to provide an effective method of holding officials to account for efficiency both in the collection of revenues due the city and in the administration of expenditures.

Facts To Be Established in the Audit

The controller is too often content with facts so limited that they do not show if the transactions he approves are honest and accurate, though he may determine that they are technically legal. For example, in exercising control over collections, he may ascertain only that the amount deposited in the bank agrees with the amount reported as collected. He still does not know if the amount reported is all that was actually collected. In exercising control over expenditures, he may ascertain only that the claim is approved by the department head, that it is correctly computed and that the appropriation balance is not overexpended by the expenditure involved. He still does not know if the approval of the department head was purely perfunctory, if the city actually received what it is asked to pay for, if the prices charged were in accordance with the purchase agreement, or if payrolls were "padded." Very often, local laws do not permit the controller to find out all of these things.

The facts which should be established in the audit of transactions, may be classified as follows:

I. *Facts about transactions that result in revenues and other receipts:*

1. *Are all amounts accrued but not collected correctly reported for collection?* Examples of these amounts are tax levies, special assessment levies, charges to water consumers, and miscellaneous sales. Such amounts are said to be "accrued" because they are accumulations of prospective collections.

2. *Are the foregoing amounts collected within the time provided by law or otherwise accounted for satisfactorily?*

3. *In cases where collections are coincident with accruals, are the amounts collected correct under the terms of law or executive order?* Examples of such collections are those from licenses, permits, and fees. These are "coincident with accrual" because it is not known until collection what is to be collected. Under rare circumstances, the amount to be collected may be left to the authority of the executive instead of being specified by law.

4. *Are all collections deposited to the credit of the city as promptly as required by law?*

5. *Are the legal or executive provisions for the safekeeping of the city's cash complied with?* Examples of such provisions are those covering security to be furnished by city depositories, limit upon amount of separate bank balances, satisfactory financial condition of banks chosen as depositories and surety bonds of collecting and custodial officials.

II. *Facts about transactions that result in expenditures:* (These facts are subdivided into classes A, B, and C following):

A. *Facts about transactions evidenced by claims only for personal services.* These claims include payrolls.

1. *Are the payees actually employed in the service of the city government?* Is the payroll "padded" with fictitious names?

2. *Are the payees employed in accordance with whatever employment regulations, civil service or other, that are in effect?*

3. *Is the amount credited to each payee actually earned?* Is the payroll padded with more time than the employees were on duty?

4. *Are the respective rates of pay appearing on the claim those authorized by salary or wage regulations or agreements?* Is the payroll padded with inflated rates of pay?

B. *Facts about transactions evidenced by claims only for expenditures other than for personal services.* These claims include those covering purchases of supplies, materials, equipment, and contractual services.

1. *Were the quantities of commodities or services specified in the claim actually received by the city for its use or benefit?*

2. *Does the quality of commodities or character of services received agree with that represented in the claim?*

3. *Does the unit price, quality or other terms of purchase stated in the claim agree with the terms stated in the purchase order or contract?*

C. *Facts about all transactions that result in expenditures.*

1. *Are the extensions and footings of amounts in the claim arithmetically correct?*

2. *Has the claim been paid previously?*

3. *Will the amount of the claim exceed the appropriation balance after the amount of unfilled purchase orders and contracts has been deducted?*

4. *Will the payment of the claim create an overdraft on the cash belonging to the fund from which the claim is legally payable?* This fund cash must not be confused with either total cash in bank or appropriation balance. There could be an ample bank balance and appropriation balance but not sufficient cash that belongs to the fund from which the claim is to be paid.

5. *Are the fund and appropriation against which the claim is reported to apply those legally provided for the expenditure involved?*

6. *Is the government activity or service against which the claim is reported to apply the one for which the expenditure involved was created?*

7. *Is the payment made by the disbursing officer for only the amount audited and ordered paid?*

8. *Was the personal receipt of each payee obtained?*

Auditing Control Over Revenues and Other Receipts

The essentials of auditing control over revenues and other receipts may be briefly summarized as follows: (1) summary digest of financial laws, (2) reports to the controller of amounts accrued but not collected, (3) automatic checks on the accuracy and authenticity of accruals, (4) accounts of amounts due the city but not collected, (5) billing systems, (6) controlled financial stationery, and (7) daily reports of collections to the controller. These are considered below in the order named.

Summary Digest of Financial Laws

Nearly all revenues and other receipts accrue to the government as the result of legislative enactments—state laws, ordinances, and councilmanic resolutions. Provisions of law are involved in all the facts to be determined in the audit of transactions relative to revenues and other receipts. It is, therefore, necessary that the controller be fully informed upon the various legislative enactments that are in force.

Many competent controllers provide their offices with the necessary volumes of law, secure copies of new enactments and familiarize themselves with the contents, trusting thereafter to their memories and occasional reference to the various enactments. In many instances, this may be sufficient for practical purposes. However, a summary digest of financial laws, suitably classified, would more readily disclose whether or not the city was accruing receipts from all authorized sources. In such a digest, the summarized provisions of the laws should be classified according to the sources of revenue. The digest can be a loose leaf record containing separate sheets or cards for each source of revenue. On each sheet should be written a brief statement of the legal provisions classified in a comprehensive and uniform manner, some-

what as follows: base on which the revenue is computed, rate, period covered by tax or privilege, date due, date delinquent, penalty for nonpayment, discount for early payments, provisions for sale of property, collecting officer, fund to which revenue becomes an increment. After each summarized provision should be written the legal reference. The digest should include the provisions of financial laws with reference to auditing control over expenditures. It should also include the legal provisions governing the issuance of bonds and it should be the duty of the controller to see that these are enforced. The digest should, of course, be cumulative. It should provide convenient reference to legal enactments on the same subject, so that occasional moot questions could be decided more authoritatively. It should draw attention to loose administration of financial laws generally and point to careless and conflicting legislation.

Reports of Amounts Accrued but Not Collected

The amounts of receipts accrued but not collected should be reported to the controller by submitting to him the following rolls and schedules:

1. Tax rolls—often called tax duplicates or tax lists. These show the amount of each kind of taxes levied against each taxpayer. Different kinds of taxes often require different forms of rolls.

2. Special assessment rolls. These show the amount levied against each parcel of property benefited by an improvement, or against which the cost of a service is assessed.

3. Schedules, or lists, of bills issued. These include uncollected charges against customers of municipally owned utilities, and sales of miscellaneous services, commodities, discarded property, and so forth.

The above rolls and schedules provide the controller with the necessary information concerning the amounts

that are later to be collected or otherwise satisfactorily accounted for. However, their accuracy and genuineness must first be substantiated by the means described below. In order to facilitate the control over collection of these accruals, the totals of each roll and schedule should be charged to accounts of amounts due the city. The general character of these accounts is discussed in Chapter V.[1]

Checks on the Accuracy and Authenticity of Accruals

The controller should verify the extensions and footings on the rolls and schedules. Aside from this, he cannot otherwise literally verify the accruals reported to him because it would necessitate recomputation and entire duplication of work already performed. He should, nevertheless, substantiate their accuracy to his satisfaction by whatever reasonable means may be adopted for that purpose. These means are briefly outlined below.

The responsibility for accruals should be delegated to an agency separate from the one that is responsible for their collection. For example, taxes should be assessed in one bureau or division but collected in another. Thus, the opportunity is not afforded to falsify accruals to agree with collections subsequently reported.

An important feature of auditing control is the audit of tax returns of corporations or businesses. This audit is made when it is considered necessary to verify the accuracy and authenticity of the volume of business or other taxing base as reported by the taxpayer. The audit may be performed by either the assessor or the controller, but should be subject in any case to the supervision of the latter. Such an audit cannot be undertaken, of course, without the necessary legal authorization to examine the accounting records of taxpayers.

Special assessments are frequently levied on the basis

[1] See below, pp. 165, 183 ff.

of actual cost after the completion of an improvement or the rendering of a service. Accounts of the expenditures on such improvements and services should be kept by the controller. By this means, he is able to tell whether or not the total accruals resulting from special assessments are complete and accurate, according to the policy pursued in levying cost.

When the services of municipally owned water, gas, or electric utilities are metered, provision is often made to prevent what is known as "curb-stone meter reading." That is, some system is adopted which makes it difficult if not impossible for meter readers to adopt the easier way of merely inventing the readings they report rather than visiting each meter and reporting actual readings. If the meter reader reports his readings in a book which contains the previous readings, it is easy for him to invent the new readings. The principal precaution to be taken, therefore, is to furnish the readers with fresh report blanks for each new reading of meters. This method is often supplemented by interchanging the routes of readers from time to time. A method has also been introduced of photographing meter dials.

Often municipally owned water supply is not metered but is charged for on the basis of a fixture rate.[1] That is, the consumer is charged according to the number of taps on his premises, such as faucets, bath tubs, water closets, hose connections, and so forth. In order to insure complete accruals under the fixture rate, there should be a careful system of reporting new connections and taps to the office of the water utility. This system of reporting is often supplemented by periodical inspections of premises to see if all connections and taps are accurately listed.

The controller should occasionally test the accuracy of the reports of meter readings, connections, taps and

[1] See below, page 536.

inspections. He should prescribe a system of making such reports that will insure accuracy in accordance with the local requirements.

Numbered bill forms should be used in billing charges for services and sales of a miscellaneous nature such as repairs to street openings, repairs to pavements between car tracks, sewer connections, city hospital services, sales of discarded property, and so forth. Such bill forms serve to prevent omissions in the schedules of bills for miscellaneous services and sales. The numbered forms in blank should be issued by the controller to the billing agency and charged by him to it. Used forms should subsequently be accounted for at short intervals.

Accounts of Amounts Due the City but Not Collected

Accounts should be kept by the controller of amounts due the city government in order to ascertain if all the accruals are subsequently collected or otherwise satisfactorily accounted for. There should be separate accounts for the different kinds of taxes, special assessments, charges against customers of municipally owned utilities, and sales of miscellaneous services and commodities. These accounts should be "controlling" accounts only. That is, they should be accounts with the total amount due from each of the sources just mentioned, and they should "control" the accuracy of the amount owed by each debtor as shown on the several tax rolls, assessment rolls, customers' ledgers, and so forth, kept by collecting officers. Collections should also be indicated on the tax and special assessment rolls and schedules of bills kept in the collecting office in order that the controlling accounts may be proved with the detailed records.

It is usually provided that taxes on real property, special assessments, and sometimes water rates, become a lien on the property and that the property may be sold

when these charges remain unpaid and become delinquent. All delinquent charges should, therefore, be transferred to a delinquent record which shows the accumulated delinquent charges against each parcel of property for each year. In this record should also be recorded the action taken in the sale of the property for charges, the costs of sale, the amount of penalties charged, and the amount recovered.

Billing Systems

Properly designed billing forms may be made an important aid in the establishment of auditing control. A description of the tax bill used in certain cities for this purpose and of the system of control which it facilitates, will serve to illustrate this statement.

The tax bill in question is printed in triplicate on one sheet of paper, the three parts being identical in form and wording except that they are designated respectively as notification, receipt, and stub. For the information of the taxpayer, the receipt, or the notification, or both, may bear on the reverse side information concerning the city budget, taxes and tax rates, and instructions on the time and place prescribed for payment. When ready for use, the bill is in a triple fold-over form, the fold lines being perforated. If the reverse sides of the copies are not required for purposes of supplying information to taxpayers, the backs of two of the folds may be carbonized. Otherwise, it becomes necessary to provide additional carbonized fold-overs in order to eliminate the labor of inserting carbon papers between the copies when the bill is made out. In case taxes are payable in installments, vertical perforations may be used to provide the requisite number of coupons. All bills are numbered serially, the same number appearing on all the copies and coupons of one bill. As the bills are made out, the serial number of each successive bill is entered on a column

provided for the purpose on the tax roll. The bills are then filed in numerical order in the treasury or collecting office.

The taxpayer subsequently receives the notification copy either by mail or messenger, or it is handed to him in the collector's office when he calls there to pay his taxes. When the taxpayer pays his taxes to the cashier in the collector's office, he surrenders the notification copy to the cashier and receives from him the receipt copy. The notification copy has a notice printed on it to the effect that it is not a receipt for taxes and that the taxpayer is entitled to the receipt copy when he pays. The surrendered notification copies are used by the cashier in balancing his cash at the end of the day and in recording his receipts. The stub copies of all tax bills collected are turned over to the controller daily. These copies are filed in the latter's office by index number after the aggregate amount thereof has been found to agree with the total shown as collected on the daily cash report. The controller should find in the collector's file the receipt copies of all bills that have not been reported as collected. The bills not so reported should be those for which there is no stub in the files of the controller. When the controller fails to find in the collector's office the receipt copy of any bill of which he does not have the stub, the presumption is that the bill has been collected but deposit not made. The controller should make an examination for this purpose at such times as he considers advisable. He should also make a test check daily on bills selected at random.

The above procedure should of course be varied or elaborated to fit the local requirements and the size of the city. For example, in small cities the notification copy may be dispensed with. In large cities more copies of the bill may be found convenient and the controller may also enter the collections on a duplicate of the tax

roll kept by him. Bills of accruals other than from taxes should be handled through a more or less similar procedure.

Controlled Financial Stationery

Licenses, permits and fees are revenues, the collection of which is made at the same time as the charge for the privilege or service. The audit of such revenues, therefore, requires that the accuracy of the accrual and collection and the prompt deposit of collections be ascertained at the same time. For this purpose, what is known as "controlled financial stationery" should be used in making the collection.

Numbered bills for miscellaneous revenues are one form of controlled financial stationery. Another form that may be used in the collection of licenses, permits and fees is similar to the post office money order. The essential feature, of course, is the counterfoil margin which is a better safeguard than the written stub against falsification of the record of the amount collected. When the rate of the license, permit or fee is constant, and does not involve a calculation or does not vary according to other circumstances under which it is collected, the amount may be printed on the form and the special margin eliminated. The controller must, of course, see that the correct rate has been used in calculating the amount. These forms are numbered and charged to the collecting officer by the controller. They are usually prepared in triplicate. The original is given to the payer and the duplicate goes to the controller. The triplicate is not provided with the margin and is retained by the collecting officer.

Another method for controlled stationery is by use of a locked machine instead of the counterfoil margin. One copy remains in the machine as the other two are drawn out. The controller keeps the key to the machine.

Daily Reports of Collections

Frequently there is more or less disorder in the manner in which the controller receives the necessary information about collections. Such information may be handed to him in the form of loose memoranda from the collecting officer, or he may secure it through an examination of the collecting officer's records made at more or less irregular intervals.

When collections are reported in an unsystematic, informal manner, the controller does not have an authoritative statement of the collecting officer on which to base his audit. The collecting officer may then evade responsibility for the collections recorded by the controller in the latter's accounts; the precision necessary to good recording is lacking.

There should be a regular form of daily cash report. It should be prepared each day in duplicate by carbon process, the original being transmitted to the controller and the duplicate retained by the collecting officer. When the treasurer is the collecting officer, this report would be prepared by him and would contain only his signature. The total amount shown by stubs of bills, licenses, permits and fees collected, should be checked with the respective amounts shown on the cash report. The controller should also check the amount of interest and penalties on delinquent taxes and assessments by applying the prescribed rates thereof to the principal shown as collected. The amounts of previous accruals collected should be entered to the credit of the respective accounts of amounts due the city government. The controller must see that the receipts are also credited to the right fund. At the end of each month, the controller should reconcile the bank balances reported to him by the banks, with the total cash in the bank shown by a cash account to be kept by him. The various bank balances should

be examined at sufficiently frequent intervals to see that their amounts are not in excess of legal requirements, that the depositories are chosen according to law, and that the security furnished by them is adequate as well as legal.

Particular Transactions Noted

There are certain occasional transactions the auditing control of which is implied in the foregoing procedure but which deserve special note. Abatements of taxes previously levied constitute important transactions that are often only loosely controlled. Such abatements are reductions of taxes by a designated authority, which have been determined to be erroneous. In ascertaining that taxes accrued are collected or otherwise satisfactorily accounted for, the controller should see that any abatements are properly authorized, and that the correct amount thereof is credited to the account for taxes receivable and also entered on the tax rolls. If for any reason the abatements authorized cannot be reported directly to the controller by the authority responsible therefor, the controller should at least be empowered to examine the authorizations for abatements received by the collecting officer.

Another important class of transactions from the standpoint of auditing control is the receipts from bond sales. The terms of the bond sale should be known definitely by the controller, as well as the amount of bonds issued, and he should then verify the amount reported to him as received with his calculation of the amount that ought to be received according to the terms of the sale and the issues. The circumstances of the sale will determine just what detailed methods of audit the controller should follow. Sometimes an account is opened to cover bond issues and sales.

Sales of city owned properties occasionally require

the attention of the controller. In all such matters, the controller should receive authoritative information from original sources as to the conditions on which the transactions are based and he should then verify his calculation of the amount accrued with the amount reported to him as collected.

Auditing Control Over Expenditures

Expenditures on account of payrolls require special methods of auditing control. These will be considered later. The essentials requisite to auditing control over expenditures, not peculiar to payrolls, may be briefly summarized as follows: (1) purchase order and contract forms, (2) appropriation accounts, (3) file of encumbrances, (4) advice of commodities received and contractual services performed, (5) physical inspection of commodities and services, (6) claim forms and certifications, (7) claimants' ledger, (8) fund cash accounts, and (9) voucher-warrant-check forms. These are briefly considered below.

Purchase Order and Contract Forms

Each purchase order or contract should be sent to the controller for validation before it is issued. If the amount of the purchase order or contract is in excess of the appropriation balance after other encumbrances, or unfilled orders and contracts, have been deducted, he should not permit it to be issued.

Copies of all purchase orders and contracts should be filed in the office of the controller. They should be used in determining the amount of encumbrances against appropriations and in checking claims as to purchase agreements. They should also be used in preventing duplicate payments of claims. For this purpose, the completed orders should be filed separately as the respective claims are paid. Thus, the absence of an order in the uncom-

pleted files corresponding with a claim received would be evidence that the claim had been previously paid.

Appropriation Accounts

The purpose of appropriation accounts in auditing control over expenditures is to give information as to the unexpended balance of appropriations.

An appropriation account sheet that has been designed for a loose-leaf binder should be used to record the transactions affecting each appropriation. Spaces should be provided in the caption to record the name of the organization unit or spending agency, the title of the appropriation, the fund from which it is payable, the total appropriation, the allotments, and any reserve for contingencies that may be established. In case the executive allotment system is not followed, a space should be included in the caption for appropriations and transfers. As transfers are authorized during the year they should be recorded in this space and the resulting increase or decrease of the appropriations shown at the same time.

The appropriation account sheet usually shows in columnar arrangement the date of claim, claim number, order number, name of claimant, description of claim, journal page on which it has been registered, amount of claim, unexpended balance of appropriation, and remainder of quarterly allotment. However, some accountants believe it is necessary to identify the claim only by its number and that the other description thereof may be omitted in this record.

Sometimes special funds are expended without a definite appropriation, the exact amount available not being shown at the beginning of the fiscal year. In such cases the foregoing appropriation account sheet is not used, but the necessary control is provided through a special account kept on an ordinary ledger sheet.

File of Encumbrances

An encumbrance against an appropriation means an obligation which will become chargeable against it in the future when the transaction represented by an uncompleted purchase order or contract shall have been consummated. A considerable time may elapse between the filing of a purchase order and the delivery of the goods, or between the signing of a contract and the completion of the work thereunder. In order to keep an accurate and compact record of every such uncompleted transaction, a copy of every purchase order and a brief memorandum of every contract should immediately upon approval by the controller be placed in an encumbrance file, classified according to the appropriation out of which payments therefor are eventually to be met. The unencumbered balance of an appropriation is the unexpended balance in that account minus the aggregate of all the encumbrances in the corresponding section of the file. Failure to maintain such a file or to refer to it in advance of validating further purchase orders or contracts may lead the controller to authorize expenditures in excess of the total amount available in the appropriation. In other words, he would be doing business on the plan followed by a man who contents himself with ascertaining his cash balance in the bank before drawing a check against it, and neglects to find out whether he has previously drawn checks against that balance which have not yet been presented for payment. In short, the encumbrance file serves a purpose similar to that of the stubs in a check book.

On the controller's copy of the purchase order form separate spaces should be provided for "unencumbered balance," "adjusted encumbrance" and "adjusted unencumbered balance." The first is noted on the document at the time it is placed in the file in order to avoid the inconvenience of adding up all the encumbrances against

any one appropriation each time an order or contract is received. That operation is like carrying forward the bank balance on the back of the check stubs, if the above analogy is continued.

The "adjusted encumbrance" is noted on the document as the result of an adjustment between the original estimated total amount of the order and the revised estimated total. The total amount of the order frequently must be estimated, due partly to the speculative element in the quantity that will actually be delivered. After one or more deliveries have been made, it may be ascertained that the total amount is more or less than the estimated total amount. Adjustments will occur also as the result of partial deliveries on an order because these reduce the amount of the encumbrance. The "adjusted encumbrance" will be the adjusted estimated total less the amount of the deliveries. Several adjustments may be necessary before the order or contract is finally completed if the partial deliveries are numerous, but adjustments are not necessary for comparatively small amounts. The partial deliveries should also be noted on the document.

As the result of an adjusted encumbrance, or the elimination of an entire encumbrance when an order is completed, it will be necessary to adjust the unencumbered balance shown on the last order placed in the file. Hence, the provision for several spaces on the form for "adjusted unencumbered balance." It will ordinarily be sufficient to make these adjustments monthly. An "order register," or chronological and serial record of orders issued, should be kept. The file should be checked with this register monthly to see that all open order documents are in place in the file. The necessary adjustments to balances should be made at that time.

The issuance of purchase orders against contracts has the same effect upon encumbrances resulting from con-

tracts that invoices for partial deliveries on purchase orders have on the encumbrances resulting from the latter. The adjustments to be made on the contract memoranda in the file would therefore be similar to those to be made on the purchase orders.

The general purpose of the above procedure is to have the last document placed in the file show the unencumbered balance as it may be adjusted from time to time. An older method of recording unencumbered balances is to show them in the appropriation accounts. This method, however, is more intricate than the encumbrance file and often results in a great deal of trouble in bookkeeping.

Advice of Goods Received and Services Performed

Claims should be approved by the operating executive responsible for the expenditure involved. However, this is not sufficient evidence for the controller that the city has actually received in quantity and quality what the claims show. Operating executives do not have first-hand knowledge in all cases about the claims they approve. Their approvals are apt to be perfunctory. Subordinates may likewise be perfunctory or even negligent in their approval of claims. They may not have carefully counted and thoroughly inspected the commodities delivered or services performed.

A protection against such perfunctory or negligent action is an original report to the controller from the employee who actually received the goods or supervised the services performed. Such a report is known as an "advice of goods received or services performed." The kind of services thus reported on, however, are only contractual services and not personal services. The "advice" should be prepared by the receiver or supervisor without seeing a copy of the claim. Thus he would be required definitely to determine upon his own initiative,

the quantity and condition of what was received. Duplicate copies of this "advice" should be prepared, one copy going to the controller and the other to the departmental office. The order number and name of vendor would be obtained from package marks and delivery slips, the vendor having been instructed on the purchase order to place such information thereon. Some accountants, however, believe it is often sufficient for the controller to depend upon the different departmental offices to check the claims against the advices, the former testing the accuracy of this departmental audit from time to time.

Physical Examination of Commodities and Services

It will be readily understood that the quality of some commodities cannot be determined by merely viewing them; as, for example, coal, brick, cement, some food supplies, fire hose, and so forth. It is necessary to make laboratory tests of samples of such commodities in order to determine their quality. A report of each test should be sent to the controller in order that he can ascertain if the quality corresponds with that billed to the city.

Certain construction work and other contractual services should be inspected by engineers or other special technicians, in order to determine if the requirements have been fulfilled. Reports of such inspections should also be made to the controller.

It is often contended, with reason, that all such examinations and inspections should be directly under the authority of the controller.

Claim Forms and Certifications

It is apparent that a claim cannot be intelligently audited, which does not contain a definite, detailed statement of the goods or services covered by it, and where and when these were delivered. The approval of the operating executive to the claim ought also to be ex-

pressed in definite particulars. The essential information on the claim form should be as follows: (1) definite description of each commodity or service billed, (2) quantity of each, (3) unit price of each, (4) amount charged for each, (5) total amount of claim, (6) date of delivery, (7) delivery point, (8) city's order and contract number, and (9) certificate of approval of the department head or operating executive.

The certification of the operating executive should be to the following effect: (1) that the commodities or services specified were received in proper condition in accordance with requirements and the terms of the purchase order or contract, (2) that they are to be used solely for the benefit of the city, and (3) that they are properly chargeable to the fund and appropriation indicated on the claim. On the purchase order, the purchasing officer will have certified that the price charged is reasonable and just. The real value of the certification, of course, is that it establishes responsibility. For that reason it must be more definite than merely "O. K." or "approved."

Very often it is required by law that the claim contain an affidavit of the claimant to the effect that payment has not previously been received, that the claim is honest, and so forth. Such an affidavit may be of value in court action to recover on incorrect expenditures. Otherwise, it presents only facts which the controller should be able to establish authoritatively by his audit; and it does not relieve any city official of responsibility for the honesty and accuracy of the claim.

It is the duty of the controller to see that claims are received, audited and paid promptly, if they are accurate. He should not permit payment to be delayed by the departments. To this end, he should use the purchase order and advice of goods received as a follow up. Either of these documents should indicate if the claim is due

to be received by him. If audit and payment of a claim are delayed, it may mean the loss of cash discount or the compromise of good trading relations with the vendor.

After the claim has been audited by the controller and approved for payment, he should certify to it as follows: (1) that it has been audited by him, (2) that it is not in excess of the appropriation against which it is chargeable, (3) that it is in accordance with the contract or purchase order as reported to him, (4) that extensions and footings are correct, (5) that it has not previously been paid, (6) that no law is violated thereby, and (7) that to the best of his knowledge and belief the commodities or services were received as represented and that the price is reasonable and just. It may be sufficient to have these certificates less detailed. Nevertheless, they should be definite with respect to the facts they are supposed to cover.

Sometimes standard forms for claims are printed by the city and furnished to vendors. The practicability of requiring the use of such standard forms is a matter largely for local consideration. Usually the vendor's own stationery will suffice to satisfy the above requirements.

Claimants' Ledger

The claimants' ledger provides the means by which double payment can be prevented. Copies of filled purchase orders and advices of goods received provide evidence of previous payment, but the claimants' ledger is the proved and balanced accounting record of previous payments to claimants.

This ledger contains accounts with each vendor or contractor, arranged alphabetically by name. On the credit side of the account is entered the amount, date and brief description of each claim. On the debit side

is entered the amount, date and voucher number of each payment. The account may be set up in other ways. The important point, however, is to arrange the account in such a manner that one can determine readily when a claim is being audited if it has already been on some previous date.

A substitute for the claimants' ledger is a voucher-index card for each claimant, filed alphabetically by name. On this card should be written the date, voucher number and amount of each payment made to the claimant. Reference to this card would disclose whether or not the claim had been paid.

Fund Cash Accounts

The resources of a fund may consist of both cash and uncollected resources. Every disbursement of cash is made out of the cash resources of some particular fund, general or special. Therefore, no disbursement of cash can be made from a fund in excess of its cash resources without in effect drawing upon the cash of some other fund. Such a transaction is illegal in most cases and is contrary to sound financial management. If the cash in a particular fund is depleted, more cash may be borrowed from another fund upon legislative or executive authority. The loan, however, should be recognized in the accounts.

It is therefore necessary for the controller to ascertain that the payment of any claim does not create an overdraft upon the cash of the fund from which it is payable. For this purpose separate accounts for the cash in each fund should be kept by him. These accounts should show the available cash; that is, the cash after all approved claims, paid or unpaid, have been deducted. In order to prevent overdrafts, it is necessary to know the available, rather than the actual, cash balance. On the debit side of such accounts should be entered the cash receipts

as shown by the daily cash reports; on the credit side, the approved claims.

Voucher-Warrant-Check Forms

After a claim has been audited and approved, three documents are frequently used in its payment. The first is the disbursement voucher which is a statement of the amount or amounts being paid and the appropriation accounts charged. Attached to the voucher are the supporting claim or claims and other documents which evidence the transaction, such as purchase order, advice of goods received, and so forth. The second document is the warrant, which is the order of the controller on the treasurer or other disbursing officer, to pay the claim. The third document is the check on the bank, usually signed by the treasurer and countersigned by the controller.

The check and warrant must sometimes, under legal provision, be countersigned also by other officers, such as the mayor, city manager, or officers of the council. Sometimes the warrant is transmitted directly to the treasurer and the check then sent to the payee. Sometimes the warrant is sent directly to the payee who presents it to the treasurer or to his bank for collection.

In exercising auditing control, it becomes the duty of the controller to see that the warrants agree with the respective vouchers and the checks with the respective warrants. He should also see that the cancelled checks constitute receipts for the amounts paid or secure such receipts in another form.

The voucher-warrant-check form, as the name signifies, combines those three documents; produces an automatic audit between voucher, warrant, and check; secures a receipt from the payee; gives him a statement of what is being paid; and saves time in writing the documents. The upper section of the voucher-warrant-check is usually

separated from the lower section by perforation and constitutes the voucher statement. The lower section when signed by the controller, becomes a warrant on the treasurer, and when signed by the latter, becomes a check on the bank. It is detached from the upper section by the payee when he deposits it in his bank for collection. One voucher-warrant-check should be drawn for all the claims in favor of the same claimant paid at the same time. An exception to this rule should be made when the cash of different funds is kept in separate bank accounts. In that case, separate documents must be prepared for the amounts drawn from each bank account.

Special Methods for Payrolls

Auditing control over expenditures on account of payrolls or personal services requires the appropriation and fund cash accounts already discussed. The voucher-warrant-check is also used in a manner explained subsequently. The other essentials are briefly as follows: (1) advice of employment, (2) daily time records, (3) payroll document, (4) uniform pay periods and pay dates, and (5) pay-checks. These are briefly considered below.

Advice of Employment

The advice of employment provides the means by which the controller can ascertain if the payroll is padded with fictitious names. It is the means of identification of each payee appearing on the payroll. A separate advice-of-employment form for each employee should be prepared in duplicate by the employing office. One copy should be transmitted to the controller and the other should be retained in the department where the person is employed. If there is a civil service body or other central employment agency, a third copy should

be prepared and kept in its office. If an employee is transferred for an indefinite period to another department, the departmental copy of the advice should be transferred with him. The form should be signed by the person who hires the employee and by the department head who approves the employment. If there is a central employment agency, its certificate on the form should be necessary before the employment becomes valid. The information to be recorded on the form and the procedure in connection with it will vary with local requirements for employment administration.

The controller should check the names, designations and rates of pay on the payrolls with these advices. He should also see that no employee has been included on the payrolls twice for the same period. Such a circumstance is liable to occur where an employee is temporarily transferred or loaned to another department.

The preparation and filing of the advice with the controller is considerable protection against padding and inaccuracies of the kind referred to above. Nevertheless, he should test the genuineness of the advices as occasion seems to demand. In some cities, occasional test checks are made of payrolls by resort to visiting the addresses given for employees in order to ascertain if the names listed represent real persons actually in the employment of the city government.

Daily Time Records

The next thing for the controller to ascertain, in so far as possible, is whether or not each payee is entitled to the amount credited to him on the payroll. This fact is partly substantiated by daily time reports.

A combined payroll and daily time report for each employee should be prepared by the employing department in duplicate. One copy of this report should be transmitted to the controller and the other retained. The

time report upon salaried employees who are not paid by the day or hour may be indicated by code as follows:

W = Working
S = Sick with pay
V = Vacation with pay
A = Other absence with pay
O = Absent without pay

The controller should check the extensions and footings on the report to see if they agree with the results that should be produced by the time credited. To supplement the time report submitted to him the controller should provide for daily time reports of foremen and other supervising employees of the department. As often as circumstances seem to require he should make test checks between the reports of the foremen and the time report and payroll.

The deductions on account of contributions to pension funds should be shown on the payroll and also verified by the controller. Since deductions on account of fines are a disciplinary measure, these need not be verified by him.

If there is a central employment agency, the payroll should also be certified by its supervising officer, to the effect that the information presented is in accordance with civil service or other employment rules and regulations.

Payroll Document

The purpose of the payroll document is to evidence the amount paid to each employee and the authority for the payment. It is desirable to combine the payroll document with the time report. This may not always be feasible, due to local methods of employment management and supervision. When the two documents are not combined, the payroll document should supplement the information on the other. It should be prepared from

the time reports by the controller or, in large cities, by a central payroll division. A summary of the payrolls for the same period should also be prepared showing the total amount chargeable to each appropriation under the various organization units.

Uniform Pay Periods and Pay Dates

Sufficient time should elapse between the end of the pay period and the pay date to permit of a thorough audit before payment is made. Frequently, the pay date is the same as the end of the pay period; payrolls for the calendar month are paid on the last day of the month. As a result, such payrolls are prepared and approved before the end of the month, thus authorizing payment for time that had not been earned when the payroll was approved. Absence from duty or separation from service may consequently occur after preparation of the payroll without the required deduction from pay. It is not sufficient or convenient to require the approving officers to notify the disbursing officer on the pay day of any changes in the payroll. This is a negative form of advice and may be overlooked.

From two to five days is the time usually required for preparation and audit of the payroll and drawing of pay checks or preparation of pay envelopes. The pay date should, therefore, be about that length of time after the end of the pay period.

Although not necessary to auditing control, payroll procedure is considerably simplified by having uniform pay periods and pay dates for the same group or class of employees. This does not require that all employees of the city should be paid on the same date, but only those in the same unit or same class of employment. In fact, payment might be facilitated in a large city by paying employees of different units or classes on successive days. It sometimes occurs that the approval of a board,

commission or other body, which meets at irregular intervals, may be required before a payroll is valid, or that payrolls may be paid at whatever date they are ready. This results in irregular pay periods and pay dates, and should be avoided. It frequently requires inconvenient accounting procedure, disruption of routine, and calls for cash advances to employees. Besides, it is not satisfactory to low paid employees. The approval of boards, commissions or other bodies in such instances is more or less perfunctory and does not usually have very much value in evidencing the accuracy of payrolls.

Pay-Checks

The advantages of pay-checks over paying in cash are principally to insure that payment goes directly into the hands of the payees shown on the payrolls and that a bona fide receipt is automatically secured. Something may also be said for the greater ease with which payment can thus be made and payroll moneys satisfactorily accounted for.

It is not an uncommon practice for payment to be made in cash and for the payee to receipt the payroll document. Payroll padding is easier when payment is made in cash. When the receipts for payment are made on the payroll document, they can easily be forged or otherwise violated. In fact, it usually becomes convenient practice under such methods for some one other than the payee to receipt for him either because the latter cannot write or because he delegates another person to receive his pay.

Under a system of payment by check, a separate check can be drawn to the order of each payee. The checks can be of the self-identifying kind, similar to a traveler's check. If the payee does not have a bank account, he may present his check to anyone of the city's depositories

where special payroll bank accounts have been established. If the payee cannot endorse his check, he may be identified at the bank by presenting his badge or brass check, the number of which is written on his pay-check.

In order to conserve the time of higher salaried officers in signing pay-checks, they may be signed by a paymaster or clerk in the office of the disbursing officer. Under this method one voucher-warrant-check is drawn for the total amount of payrolls payable on a given date. It is deposited in a special payroll bank account established exclusively for payroll transactions.

The time of the payees can also be conserved by having a paymaster deliver their checks to them at their places of employment. In smaller cities, arrangements can usually be made with banks, especially savings banks, to cash the pay-checks at such times as would not require many payees to leave their employment.

Independent Audit Essential to Complete Control

The controller's duties which have been outlined in the foregoing sections are intimately connected with, and indispensable steps in, orderly administration. From the standpoint of administrative efficiency, therefore, it is essential that the controller be appointed by and responsible to the chief executive. The need for control, however, does not end with the relations between the executive and his subordinates. It extends also to the relations between the executive and the city council. It is not sufficient that the executive should know whether or not the administrators under him are complying with their duty. Before complete control has been established, it is necessary also to know whether or not the chief executive is carrying out the policies determined upon by the people or their legislative representatives. Consequently, as an assurance of the integrity of the

administration, the need for an audit conducted independently of the executive becomes apparent. Except possibly in the largest cities, a periodic audit is sufficient for this purpose.[1]

[1] See above, pages 21-22.

CHAPTER V

GENERAL ACCOUNTING AND REPORTING

The accounting system of a city government comprehends certain forms and methods of procedure. These forms consist of vouchers, financial stationery, journals, ledgers and reports. The methods of procedure relate to the gathering, auditing, recording, and reporting of the information on the financial transactions of the city government, the forms being used in the process so that permanent records of these transactions may be maintained. The accounting system, correctly conceived, is perhaps the most important element in financial administration. It touches all the functions of the city government, the information which it furnishes is the basis of budget planning, and its reports are the instruments of administrative direction and control.

The auditing methods and records are outlined in the preceding chapter. This chapter sets forth briefly the general reporting and accounting forms and methods. In the following chapter cost accounting is discussed. At some other points in this text reference is made to accounting practice and procedure.[1] These discussions, taken together, are intended to present in outline form the essentials of an accounting system for any city government.

In describing the methods and procedure of accounting and reporting in this chapter, we have not found it practical to present any one or more of the existing municipal systems. Obviously, it is impossible in this volume to

[1] See below, Chapters IX and X, *passim*.

give a comprehensive description or critical review of the various types of accounting systems that are to be found in the different cities. Until recent years the provisions for accounting procedure in most city governments were hopelessly inadequate. Within the last fifteen or twenty years, however, a marked improvement in accounting methods has taken place along with the general advance in municipal administration. At the present time there are several states, notably New York, Washington, Indiana, Ohio, and New Jersey, which prescribe uniform accounting systems for the municipalities within their jurisdiction. In a number of states, local authorities are left largely to their own initiative in the installation of accounting systems. While the better systems have a more or less common purpose, they vary in their contents and methods. This is due in part to the requirements of local laws. In view of this situation, the United States Bureau of the Census has formulated certain rules concerning the interpretation of financial transactions, which are designed to assist in gathering its financial statistics of cities.

Financial Reports and Reporting

The financial reports may be defined briefly as those statements and documents which set forth the facts relating to the financial condition and operations of the city government. It is the purpose of this chapter to outline the form and contents of such statements and documents.

The financial reports are prepared by the controller, or other chief accounting officer, at various times and are submitted to the chief executive, to the administrative officers and to the city council, and are usually published for the information of the citizens. These reports, or rather the statements of which they consist, should be prepared at regular intervals and should cover def-

inite periods; orderly attention to the matters of financial administration demands such procedure. The statements which reflect rapid changes in financial condition or which involve matters that require close supervision, should be prepared at least monthly for the city executive, and more often upon demand. The department heads should be informed frequently of their appropriation balances. The council should receive a complete set of the financial statements when the budget is presented, and particular statements at such other times as the fiscal policy or special financial proposals are being considered.

The financial reports are made up from the accounts which constitute the permanent records of the financial transactions of the city government. Hence the form of the accounts is largely determined by the character of the information that is to be presented in these reports. For this reason, the nature and contents of the financial reports are discussed in this chapter before taking up the accounting records.

Unfortunately, the financial reports of many city governments invite indifference rather than attention on the part of those who should follow them closely. The information contained in such reports is often incomplete, ambiguous in statement, erroneously interpreted, or irrelevant as a basis for action. Not infrequently the financial reports consist only of a tardy annual report or a carelessly prepared budget document. During the year, the facts about the city's finances, in so far as they are recorded, may remain buried in the books of the accounting office and finally appear in such form as to be of little value.

The information that should be presented in the financial reports is necessarily determined by the administrative purposes which are to be served. Some of the more important of these purposes are the formulation of the

budget, the administration of the budget plan, the efficient and honest management of fiscal matters, and the accounting to the council and the citizens for the accomplishments or failures of the administration. The things upon which information is required as a basis for administrative action may be summarized as follows: (1) the surplus available for appropriation or the deficit to be met, (2) the general bonded debt that may be legally issued and the future annual charges on the existing debt, (3) the administration of expenditures of the past period, (4) the means of financing those expenditures, (5) the observance of legal restrictions upon the expenditure of resources, (6) the management of funds for investment, (7) the liquidation of assets and liabilities, (8) the custody and security of cash, (9) the acquisition and custody of property, and (10) the solvency of public utility enterprises owned and operated by the city government.

The financial reports consist of a series of statements which should contain the information just outlined above, in systematic form. These statements are either of a summary or a detailed character. The summary statements or exhibits relate to the following: (A) the resources, obligations and surplus of each fund; (B) the income and expenditures of each fund; (C) the current assets and liabilities of the municipality as a whole; (D) the general bonded debt; (E) the permanent properties and stores; and (F) the balance sheet of each public utility. The detailed statements or schedules, which in most respects support the information presented by the summary statements, concern the following: (1) current assets, liabilities and investments; (2) appropriation balances; (3) revenues; and (4) expenditures.

The form and contents of the above statements and the manner in which they serve administrative purposes

are discussed below. The relation of the statements to each other is also explained. For the sake of brevity, the statements will occasionally be referred to by the designation indicated above, thus: "Exhibit A," "Exhibit B," etc.; "Schedule 1," "Schedule 2," etc.

Summary Statement of Fund Resources, Obligations and Surplus

When the preparation of the budget is undertaken, it is necessary to know how much is left of the city's resources that can be spent in the succeeding period. This remainder of resources is conveniently referred to as *surplus;* and to be more specific, it should be called *surplus available for appropriation.*[1] Just as there may be a surplus available for appropriation, so there may also be a deficit to be financed in the succeeding period. This surplus or deficit must be known with respect to each fund because the legal provisions that create funds restrict the purposes for which surpluses may be appropriated and the use of resources to finance deficits.

A surplus represents an excess of resources over obligations, while a deficit represents an excess of obligations over resources. It is important to know the sums of each of the various classes of resources and obligations of each fund in connection with the surplus or deficit of the respective funds. This may be illustrated in the following manner. If in one case the resources amount to $50,000 and the obligations to $49,000, and in another case the resources amount to $2,000 and the obligations to $1,000, the surplus is the same in either case. But the conditions are quite different. Should these resources not be in the form of cash, it is easier to convert $2,000 into a cash resource than it is to convert $50,000. Taxes and other forms of accounts receivable may not be entirely collectible. Under such circumstances the

[1] See Exhibit A, Figure 5.

exact value of the resources is doubtful. Distinctions should be made between the different classes of obligations, because the total of certain obligations can be less exactly stated than others. Thus, the total outstanding purchase orders and contracts—*unliquidated encumbrances*—must often be estimated; while the total temporary loans can be known exactly.

A balanced budget means that the total expenditures from a particular fund do not exceed the total income of that fund. Whether or not the budget is being properly carried out can be ascertained if the sums of the different resources and obligations of each fund are known at frequent intervals. When the budget period begins, the resources are in the form of estimated income and the obligations are in the form of appropriations or otherwise authorized expenditures. This, of course, assumes that there is no surplus or deficit carried over from the preceding period, and the sum of the estimated income equals that of the appropriations. As the period progresses, the taxes, for example, that are levied, will decrease the estimated income as a resource but increase the resource which we will call *taxes accrued and estimated collectible*. The term "accrued" means that the taxes have accumulated as a resource although they have not yet been collected. As the taxes are collected, the above resource will be decreased but the resource consisting of *cash* will be correspondingly increased. In a comparable manner the other sources of estimated income will pass through the processes of accrual and collection. If, however, the appropriations are being used more rapidly than the resources are being accrued and collected, an excess of expenditures over income will be the result. If temporary loans have been issued, these must also be taken into account as obligations which should be provided for out of resources in addition to appropriations. Consequently, if the administrator car-

ries out the budget properly, he must be continuously informed of the condition of the resources and obligations of each of the various funds included in the budget.

It is often necessary to borrow money in anticipation of the collection of revenues, when the dates of collection are subsequent to the dates on which expenditures must be met. In order to know when to borrow on temporary loans and how to plan for the payment of these loans, it is necessary again to know the condition of the resources and obligations in each fund. For example, a cash balance that is small compared with the sum of the approved claims and warrants awaiting payment would obviously indicate the immediate necessity for temporary borrowing. This relation between the cash balance on the one hand and the claims and warrants payable on the other, is expressed by the resource known as *cash available* which is the difference between those two totals. Further, the obligations known as *unencumbered balances of appropriations, unliquidated encumbrances,* and *temporary loans outstanding,* when compared with the progress that has been made or is probable in the accrual and collection of resources, indicate in advance whether provision for temporary borrowing will later be necessary. *Unencumbered balances of appropriations* represent the unexpended balances of appropriations less the encumbrances resulting from outstanding purchase orders and contracts. Hence, if it appears that the resources will not be accrued and collected in time to meet the expenditures that will result from this obligation, it is evident that plans must be made to borrow. If it appears that there are not sufficient resources to meet the loans that would thus be necessary, the alternative is presented of cutting down the appropriations still unencumbered. In this respect, a course of action can be taken with the unencumbered balances of appropriations that cannot be taken with temporary loans and only to a limited extent

with unliquidated encumbrances, because the last two represent agreements with creditors while the first does not.

The preceding discussion illustrates the manner in which information respecting the resources and obligations of each of the various funds is used in the preparation and carrying out of the budget. It is this information that is set forth on the summary statement of fund resources and obligations, and further detailed in supporting statements or schedules. While budgetary control to a greater or less degree is now common in the administration of municipal governments, it is not universally employed. Where budgetary control is not established, the statement of fund resources, obligations and surplus may be regarded as even more essential to efficient administration. Under such circumstances, the information contained in the statement constitutes the basis for action comparable to that where budgetary control is established.

Proposed Form and Contents of the Statement

The accompanying *pro forma* statement of fund resources, obligations and surplus (Figure 5) is presented in order that the reader may visualize the form of such financial statements. The columnar arrangement indicated is used to show the totals of the various resources, obligations and surplus of each fund or class of funds. One column may be used for each separate fund unless there are numerous funds in any one class. In that case, the total of all funds in the class may be shown on the summary statement and the total of each fund of that class shown on a detailed or supporting statement. The last column may be used for all sundry funds, provided no two of such funds have resources or obligations of the same designation.[1]

[1] See above, classification of funds, pages 67-70.

The interpretation of the term "resources" in the statement of resources, obligations and surplus, limits such resources to those of a special nature and is therefore somewhat peculiar to governmental accounting and reporting. We have seen that the proposed statement serves certain definite purposes. Items should, therefore, be excluded from the statement which are not pertinent to its purposes, which do not offer any additional information of value as a basis for action, or which invite misleading conclusions. To this end, resources represented by fixed or permanent properties such as lands, buildings, improvements and equipment are excluded from the statement. Such resources are not included in the budget as a means of financing, they are not a factor in balancing the budget, and hence they are not a subject for consideration in the statement that is used in preparing and carrying out the budget. The mere statement of a more or less arbitrary valuation placed upon permanent properties, aside from those of municipally owned utilities which are not included on this statement, is not information that suggests any basis for action. To include a value for these properties on the proposed statement inflates the surplus and invites a misleading conclusion as to the amount available for appropriation. Nor do such resources belong to any particular fund. The information that is essential about permanent properties should be presented on a separate statement, which is discussed later.[1]

In view of the purposes of the statement, it should include certain resources which, as such, are somewhat peculiar to government accounting and reporting. These are grouped on the *pro forma* statement as "income estimated or authorized but not accrued." They are resources in the sense that they represent means of financing made available by the government.

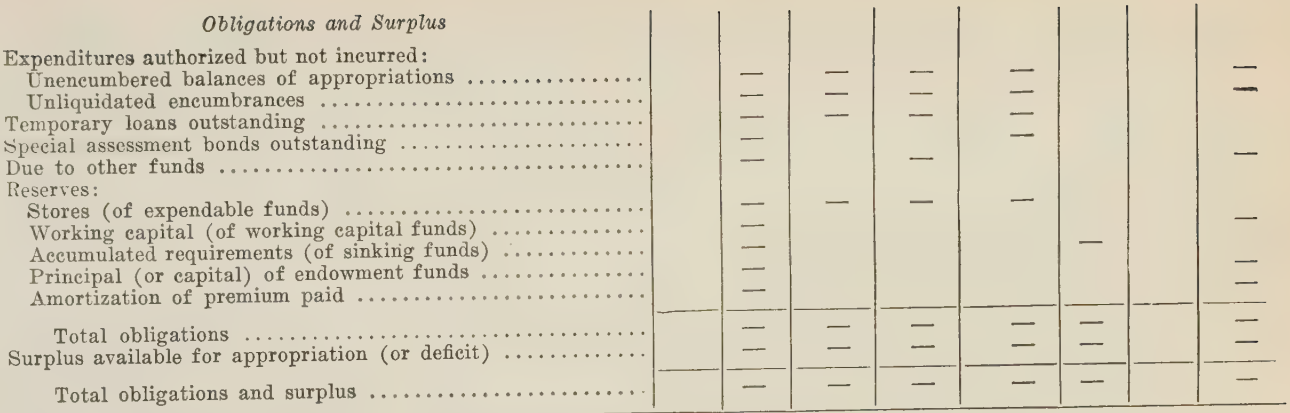
[1] See below, pages 174 ff.

EXHIBIT A

Consolidated Summary of the Resources, Obligations and Surplus of Each Public Fund

As of ..... 19..

	Schedule No.	Total	General Fund	Capital Funds	Local Improvement Funds	Sinking Funds	Other Funds	
							Name of Fund	Amount
Resources		$	$	$	$	$		$
Income estimated or authorized but not accrued:								
Revenues estimated but not accrued		—	—			—		—
Special assessments authorized but not accrued		—			—			
Bonds authorized but not issued		—		—				
Income accrued and estimated collectible:								
Taxes accrued and estimated collectible		—	—			—		—
Special assessments accrued and estimated collectible:								
Against the city		—			—			
Against property owners		—			—			
Accts. receivable of city owned utilities estimated collectible		—						—
Miscellaneous accounts receivable estimated collectible		—	—					—
Due from other funds		—	—					
Cash available (after deducting immediate demands)		—	—	—	—			
Recoverable expenditure on assessable improvements		—			—			
Stores		—	—	—	—			
Capital Resources:								
Investments		—				—		—
Cash to be invested		—				—		—
Total resources		—	—	—	—	—		—



NOTE: The dashes (—) indicate the extensions of amounts of money in the various columns.

FIGURE 5. Consolidated Statement of Fund Resources and Obligations.

The value that is placed upon the resources is of decided importance. It should represent the sum which they will probably amount to when they are converted into cash. Hence the sum of the taxes receivable or other similar resources should be stated as that sum which is estimated collectible rather than the total sum outstanding. Otherwise, the surplus available for appropriation would be overstated. This explains why the second group of resources on the *pro forma* statement is qualified as "estimated collectible." Although it is essential to know the total sum, for example, of taxes outstanding, yet such information has a bearing only upon the liquidation of assets. It is not pertinent to the purposes of the fund statement of resources and obligations and should be presented on a separate statement, which is discussed later.[1]

The terms "resources" and "obligations" are used here in a sense distinct from the terms "assets" and "liabilities," although the two sets of terms are often used as if they were synonymous. On this statement, however, the resources include not only what are commonly understood as assets, but also estimated income; while the obligations include not only liabilities, but also authorized expenditures. There is a difference likewise in showing the "cash available" as a resource, rather than the actual cash as such; and the claims and warrants payable as obligations. The term "income accrued" is also used with more freedom than in commercial accounting, where as an asset it generally means only income accrued that is not yet due. Other captions appearing on the form presented, which may invite inquiry on the part of the reader, are explained below.

"Recoverable expenditures on assessable improvements" represents those expenditures that are later assessed against benefited property or against the city as a

[1] See below, pages 169 ff.

whole. Hence, it is comparable in the case of improvement projects to cash advances and constitutes a resource. It exists under the method of levying special assessments, discussed in Chapter XII, such assessments being levied after work on the improvement project has begun or been completed.[1]

"Capital resources" are those which are used only to produce income and hence during the time they are thus segregated are not expendable. Generally such resources belong to sinking funds and endowment funds. The two classes of capital resources shown on the form are "investments" and "cash to be invested." Sometimes there may be other resources of sinking funds; such as, taxes accrued and estimated collectible. Rigid consistency in the use of terms would require that the latter resources be designated also as "capital"; but for practical purposes this has not been done on the *pro forma* statement presented here.

Technically, "reserves" are neither resources nor obligations, although they are often classified more or less indiscriminately as obligations or liabilities. In this discussion the term "reserves" is used to designate those sums which must be set aside or provided for out of surplus before the balance of the latter can be appropriated. In this sense, the term does not mean that the expenditure of any specified resources is restricted as does the term "fund." Thus we may have reserves for "capital of working capital funds," "accumulated requirements of sinking funds," "endowment principal" (or "capital of endowment funds"), "amortization of premium," and "stores."

"Reserve for capital of working capital funds" represents the sum set aside out of the surplus of the respective funds to maintain the capital authorized by the creation

[1] Special assessments for services may also be levied after the service has begun or has been completed. In this case the expenditures would also be included in this resource pending their assessment.

of those funds. As already explained, working capital funds are also known as "revolving funds" and are funds established to purchase commodities in advance of their need, or to carry on activities which require capital to inaugurate.[1] Usually the legal provisions creating these funds require that the sum of the capital advanced must be kept intact although the cash originally constituting the capital may be converted into other forms of resources during the process of administration.

"Reserve for accumulated requirements of sinking funds" is equivalent to the least sum that should be accumulated in resources in the respective sinking funds as of the date of the statement, in order to make it possible to retire the term bonds at maturity. The method of calculating this sum is discussed in Chapter XIV.[2] Theoretically, the sum of the capital resources of sinking funds should equal the sum of this reserve. A deficit in the capital resources represents the sum required to be financed while a surplus represents the sum that may be directly or indirectly appropriated either through transfer to another fund or by applying it to the reduction of the sum that may otherwise be appropriated as the annual installment to the sinking funds.

"Reserve for endowment principal" represents the evaluation of the endowment which the contractual agreement establishing the respective funds provides shall not be expended but shall be invested as capital or principal. When compared with the sum of the capital resources, the sum of this reserve denotes whether or not the former has been depleted.

"Reserve for amortization of premium paid" represents the sum which must be passed to capital resources out of income because of the premium paid in the purchase of securities. "Amortization" signifies that the

[1] See above, page 69.
[2] See below, pages 498 ff.

return of the premium to capital resources is to be accomplished gradually over a period of years. However, the reserves both for endowment principal and for amortization of premium indicate the responsibility of the administration to replenish capital out of income. If the practice is followed of amortizing the premium received on bonds sold, then such a reserve also appears on the statement. The sum of this reserve is the amount that is still to be passed to revenues, out of the sum first received.

"Reserve for stores" is equivalent to the sum of the resource called "stores." This reserve does not appear in working capital funds because such funds carry a reserve for working capital which includes the value of the stores. When stores are purchased out of other funds, their value is set aside or reserved out of the surplus available for appropriation. This is done because such stores have been purchased for authorized purposes and their value must legally be held for those purposes, until otherwise appropriated; although a physical separation of stores according to funds is not required.

Sometimes a reserve for the replacement of worn out or obsolete plant units of municipally owned utilities is included under the "reserves" on Exhibit A. A reserve for replacement of plant, or a depreciation reserve, which is calculated as a factor in showing the financial condition of a city owned utility, properly belongs on a statement designed for that purpose.[1] Exhibit A is not so designed. A reserve for the replacement of properties of the municipality other than those of utilities has not been shown on Exhibit A, because it is not observed that such method of financing those properties is ever followed by city governments.

A summary statement of resources, obligations and surplus of each fund is often called the *fund balance*

[1] See below, Figure 6, page 179.

sheet. When the balance sheet of each of the various funds is presented on one form as in Exhibit A, it is sometimes referred to as the *consolidated fund balance sheet.*

Summary Statement of Income and Expenditures of Each Fund

Those who direct municipal administration cannot proceed very far without considerable information on the expenditures and the income of the past period. A statement of income and expenditures is indispensable to the preparation of the budget and to efficient fiscal management because it presents the record of financial experience or operations. The statement of resources, obligations and surplus shows the financial condition as of a particular date. The statement of income and expenditures shows the financial operations during a given period through which that condition was brought about. For this reason the latter is often called the *statement of operations.*

The balance sheet of the general fund may show a surplus at the end of a particular year of $10,000. The statement of operations may show that the revenues accrued during that year amounted to $1,000,000 and the expenditures incurred were $990,000, resulting in the surplus shown on the balance sheet. The balance sheet in this example, however, may show total resources of $100,000 and total obligations of $90,000. Such a condition would mean that of the $1,000,000 accrued in revenues, $900,000 had been collected and disbursed to liquidate the corresponding amount of expenditures out of the total $990,000 incurred. When the $100,000 of resources were all converted into cash and the obligations of $90,000 discharged, there would be $10,000 left in cash. The point to be observed from this illustration is that the statement of operations shows the increasing

and decreasing elements resulting from income and expenditures, during the period, while the balance sheet shows the unliquidated portion of the same income and expenditures which by arithmetical calculation results in surplus or deficit comparable to that shown by the statement of operations. By pursuing the process of analysis, summarized in the statement of operations, the surplus or deficit can be explained; unsound financial policies disclosed; and by carrying the analysis far enough, mismanagement and inefficiency can be located.

The analysis of the income and expenditures may be made in a way to show the variations between budget estimates and accruals. To do this requires that the accruals of income and expenditures shall be analyzed according to the classification of estimates in the budget. Such an analysis will explain wherein the surplus or deficit was caused through departures from the budget estimates.

Summary Statement of Income and Expenditures

Complete analyses of income and expenditures involve the use of all the generally accepted classifications outlined in Chapter III.[1] However, for the purpose of this discussion we shall use only the character classification of expenditures and the source classification of income as set up on the general budget summary.[2] The summary statement of income and expenditures, when set up along these lines, should show the following main headings:

Income

Revenues other than special assessments
Special assessments
Borrowings
Sales of properties

Total income

[1] See above, pages 59 ff.
[2] See above, page 37.

Expenditures

Current expenses
Current obligations (fixed charges)
Properties
Debt payments

Total expenditures
Surplus (or deficit)

The above analysis should be presented for each fund. By providing a columnar arrangement to show the respective sums for each fund, it is possible to produce a consolidated or summary statement on one form. This summary statement (Exhibit B) should be accompanied by detailed statements or schedules which support the various items that require further analysis.[1] These detailed statements or schedules are explained below following the discussion of the summary statement.

The different headings under both income and expenditures have already been explained.[2] "Current expenses" is sometimes referred to in accounting terminology as expenses of administration and operation. "Current obligations" is often called fixed charges, implying that the amount is fixed in its relation to operation. Such obligations are a decreasing element of surplus; they do not reduce liabilities and do not create assets.

The difference between the total income and total expenditures of each fund is the *surplus (or deficit) from operations* of the respective funds for the period. This surplus should be shown on the statement immediately below the expenditure. It indicates, of course, whether or not the financial operations have tended towards a favorable or unfavorable financial condition of the various funds. To express the interpretation of this surplus

[1] The revenues and expenditures of municipally owned utilities are included on the general statement of operations of the city government. It is also necessary to set up a balance sheet and a statement of operations for each utility. The forms to be used in this connection are shown below on pages 179, 180.

[2] See above, pages 64, 67, 73.

in another way, it shows whether the administration has lived within or beyond the means made available. The reader is warned, however, against an impression that the surplus from operations represents the same conclusive index to the success or failure of the administration as would the comparable item in private enterprise. The financial success of municipal administration must be conditioned upon the quality and extent of the services that have been rendered in return for the money expended, the provision of maintenance and additions to physical capacity for service, the economy of methods, and the equitability of the means of financing. These conditions the detailed analyses of income and expenditures attempt to express.

Reconciliation with Statement of Resources, Obligations and Surplus

Since the surplus from operations is affected only by the income and expenditures of a period, it is not identical with the surplus available for appropriation shown on the statement of resources, obligations and surplus, which is affected also by other increasing and decreasing elements. These elements include one or more of the following: the surplus (or deficit) that had accumulated at the beginning of the period; the authorizations and estimates of income and expenditure that had not lapsed or been cancelled at the end of the period; possible adjustments due to unavoidable losses, such as, wastage in the stores carried on hand, and unforeseen gains that are not income; reserves that had been set aside during the period; and transfers of cash between funds. In so far as they occur, these various additions and deductions necessary to reconcile the surplus from operations of each fund with the surplus available for appropriation of the respective funds should be shown at the bottom of the summary statement of income and expenditures.

But the surplus at the beginning of the period as originally recorded and reported may have been several times adjusted during the progress of the period. These adjustments result from transactions of the period under review that affect the income or expenditure of prior periods. For example, certain taxes that were levied, accrued and perhaps collected in a previous period may be abated or refunded in the current period; a rebate may be secured in the current period on goods purchased in a previous period, which later were found to be defective in quality. Such transactions should not be included as reductions of income or expenditure of the current period, if the statement is to show accurately the operations of the period. They should be shown as adjustments to surplus at the beginning of the period.

One of the factors in this reconciliation deserves special comment, namely, *transfers between funds.* Transfers from one fund to another are distinct from loans and denote cash or possibly other resources given to another fund rather than borrowed by it. For example, all of the cash accumulated in a suspense fund is eventually transferred to other funds and is never turned back to the suspense fund; while temporarily idle cash in a capital or bond fund may be borrowed by the general fund and later returned instead of borrowing from a bank. Transfers affect the surpluses of funds while loans do not; in the latter case, a resource or obligation is created equal to the sum of the loan made or received.

Other examples of transfers are those made from the general fund to special assessment funds to cover the city's share of the assessment; those made to help finance the expenditures of other special public funds, such as, pension funds, public utility funds, school funds, and library funds. Sinking fund installments are also transfers; however, they should be included as *debt payments* under "expenditures."

Distinction Between the "Cash" and the "Accrual" Basis of Reporting Income and Expenditures

The sum of the income is often reported as the cash receipts and the sum of the expenditures as the cash disbursements. This interpretation is known as the *cash basis* of reporting. Another interpretation is to report the sum of the income which has been accrued and the sum of the expenditures which have been incurred. This interpretation is known as the *accrual basis* of reporting. The accrued income, as has been said before, is the income which has accumulated to the credit of the city, even though it may not all have been collected. The expenditures incurred are likewise those that have accumulated, even though they may not all have been paid.

It is quite obvious that cash receipts and cash disbursements will equal or closely approximate accumulations of income and expenditures of the same period only by coincidence. The cash basis of reporting provides a report only upon the operations of the collecting and custodial officers. The accrual basis provides a report upon all fiscal operations that will result in the increase or depletion of resources. If the analysis of income and expenditures is to serve those purposes that have been outlined previously, the accrual basis of reporting seems essential.

In passing, it may be noted that these two forms of reporting have been the subject of frequent debate. It is not pertinent to this discussion, however, to go into the various points of argument that may be raised on either side. Those may be learned, if the reader so desires, by reference to numerous works on accounting.

Income and Expenditure As Affected by Refunds and Reimbursements

Refunds of previous income should not be regarded as expenditures; neither should reimbursements of previous

expenditures be considered income. Both income and expenditures have a more restricted meaning than that of increasing or decreasing elements in financial condition. *Refunds* represent mostly corrections or adjustments of income previously recorded and mean a reduction of income as at first accrued. *Reimbursements* represent the recovery on particular items of expenditure and mean a reduction of expenditure as at first incurred.

The sum of these reductions may be shown either on the summary or on the detailed statements of income and expenditure, but in either case the summary statement should be based on the net amounts. Otherwise, the statements will not interpret the transactions in accordance with fact; and if the refunds and reimbursements are large, an incorrect impression of the financial operations may be given. For example, thousands of dollars in taxes may be illegally or incorrectly assessed. If the refunds of these are included as expenditures, it will appear that the municipality was expending a great deal more than was actually the case. Or, sidewalks and streets may be repaired by the municipality at the expense of those liable, when the latter have failed to do it; school supplies, vaccine, employees' uniforms, and so forth, may be supplied at cost to particular individuals. These expenditures and their recovery do not essentially affect the general financial plan; the fiscal consideration due the transactions is limited to the recovery of whatever is expended. To include these reimbursements as income would tend to destroy the basis of comparison between successive periods and between estimates and accruals.

Reimbursements should be distinguished from rebates and from revenue accrued from services and commodities sold. As has been said, reimbursements constitute the recovery on particular items of expenditure, such as those cited above. *Rebates* constitute merely the correction of

errors in cash disbursements. The latter do not deserve any consideration on the statements, but they should, of course, be deducted in calculating the total expenditures.

It is sometimes somewhat puzzling to make the distinction between reimbursements and revenue from sales. This circumstance, however, should not discourage the attempt to do so, because the distinction has a practical significance. It has been seen that the fiscal consideration to be given to reimbursements is limited to the recovery of the corresponding expenditures. The revenue from sales, especially of utility services, involves important questions of policy.

Detailed Statement of Revenues

We have seen that for certain definite purposes Exhibit A shows the balance of total estimated revenues still awaiting accrual and that Exhibit B shows the total revenues accrued during the period reported upon. The information respecting the balance of estimates awaiting accrual and the sum accrued will not be complete for the purposes it is to serve until those facts are known with respect to each of the various sources of revenue. The detailed statement of revenues should provide for such information.

Accordingly, this statement may be drawn in such a way as to show the sources of revenue, listed vertically, and opposite each source, in columnar arrangement, the respective sums as follows: (1) the estimate for the fiscal period; (2) the accrual for the period reported upon; (3) the balance awaiting accrual, or, if the report is for the entire fiscal period, the balance that has lapsed or been cancelled as a resource, or the excess of accrual over estimate; and (4) the refunds and other reductions of sums accrued within the period.

It is not necessary on this statement to classify the various sums according to funds because the fund classi-

fication shown on Exhibits A and B is sufficient for practical purposes. Additional columns may be introduced, however, for references to the fund to which each item of revenue becomes an increment and the law authorizing the revenue. Comparison with the respective sums in previous periods is often shown on similar statements. Comparison with only one or two years, which is about as much as could be crowded on this statement, is of doubtful value, however. For budget making purposes, a graph, showing the trends in accruals over a sufficiently long period of time, should be especially valuable.

Detailed Statements of Expenditures

The grouping of expenditures contained on Exhibit B shows, as we have seen, the total expenditures incurred on account of each of the following: (1) current expenses, (2) current obligations (fixed charges), (3) properties, and (4) debt payments. The detailed statements of expenditures are to provide whatever further information with respect to each of these groups that is required to serve the purposes of budget making and financial management.

The most commonly used detailed statement of expenditures is one which classifies the expenditures according to appropriations and thus shows a comparison with the budget estimates. Since such a statement can combine certain information with respect to appropriation balances, it serves other purposes as well. Hence, it is subsequently discussed in its general application as the *detailed statement of appropriation balances.*

The detailed statements of expenditures may then be completed, as is often done, with a further analysis of purchases showing in greater detail than on the above statement, just what services and commodities were bought and what was paid for them. This analysis is

considered in the next chapter, since it is properly a part of cost accounting.

Summary Statement of Current Assets and Liabilities

The fiscal officers of the city government are generally charged with the duty of collecting what is due the city and of paying what it owes to its creditors; in other words, they liquidate the assets and liabilities of the city government. Sometimes certain revenues of the city, principally its taxes, are collected by officers of the county in which the city is located. In any case, the summary statement of current assets and liabilities, often referred to as the *current balance sheet,* provides certain information that is primarily essential to the effective liquidation of assets and liabilities. It shows, besides cash, the balances of each of the various classes of unliquidated assets and liabilities as at the end of a stated period.

The balance sheets of city governments often include investments and permanent properties as capital assets and net general bonded debt as a liability. Such a form of statement is not proposed here, since the capital assets are not acquired for the purpose of liquidating liabilities; and the net general bonded debt—that is, gross debt less sinking funds—is not liquidated from existing assets. Hence, their inclusion on a balance sheet does not provide information that is essential to the liquidation of assets and liabilities. The information that is essential to the administration of capital assets and bonded debt cannot be presented on a balance sheet; it requires separate statements.

A convenient arrangement for the statement of current assets and liabilities is the balance sheet. Such a balance sheet, however, denotes financial condition only to a limited extent, and it does not show the funding restrictions which are shown on Exhibit A. The assets

and liabilities which are shown on the current balance sheet, in so far as they may exist in any particular city government, are as follows:

Assets

Cash:
- In bank
- On hand

Taxes accrued and uncollected
- Less estimated uncollectible
- Estimated collectible

Accounts receivable of city owned utilities
- Less estimated uncollectible
- Estimated collectible

Miscellaneous accounts receivable
- Less estimated uncollectible
- Estimated collectible

Special assessments accrued and uncollected
- Less estimated uncollectible
- Estimated collectible

Recoverable expenditures on assessable improvements

Liabilities

Immediate demands against cash:
- Warrants payable
- Approved claims payable

Temporary loans not due

Interest accrued, not due

Special assessment bonds

The term *current* is used in designating the assets and liabilities listed above because it signifies that they are applicable to the financing of the current period and exclude capital assets and liabilities. The summary statement of current assets and liabilities does not exhibit details; these are shown on supporting statements. In preparing the summary statement, the assets and liabilities should be separately grouped; the groups may be arranged one under the other or horizontally opposite to each other. The difference between the totals of the respective groups may be designated as "surplus (or de-

ficit) of current assets over current liabilities," and added to one or the other groups, thus balancing the two sides of the statement. The funding restrictions are not pertinent to this statement and the assets and liabilities shown on the statement need not be grouped according to funds.

Comparing the summary statement of current assets and liabilities (Exhibit C) with the statement of fund resources and obligations (Exhibit A), it will be observed that, while all the resources and obligations shown on Exhibit A are not shown on Exhibit C, all the assets and liabilities shown on Exhibit C are shown on Exhibit A. Thus, the surplus on Exhibit C is comparable with the surplus on Exhibit A. In a simple situation, the total column on Exhibit A could be used for the same purposes as Exhibit C and the latter statement be eliminated.

Detailed Statements of Current Assets and Liabilities

The liquidation of current assets and liabilities cannot be followed closely unless there is considerable detailed information about them. The time at which different courses of action should be taken in the collection of taxes, for example, will depend upon when the taxes become delinquent or if the property against which they are assessed has been sold or may still be sold in order to collect. Similar circumstances will be true of uncollected special assessments, and to a certain extent of water rates and other uncollected charges of public utilities. The dates upon which liabilities come due is likewise an important factor in managing their liquidation. Complete detailed statements of current assets and liabilities provide the information that is used in following closely their liquidation. Stated in another way, the detailed statements form a sort of calendar to which the summary statement is, in a way, an index. The ad-

ministrative action involved in the liquidation of current assets and liabilities is discussed in greater detail in Chapter X.

While these detailed statements support Exhibit C, at the same time they likewise support Exhibit B, in that they corroborate the values shown on the latter for the corresponding resources and obligations. To state, as is done on Exhibit B, that the taxes outstanding, for example, will equal a certain amount when they are finally converted into cash, requires that the evidence upon which such a statement is based should be presented.

There is still another important set of facts which the detailed statement of the current asset, *cash*, provides and which relates to its custody and security. The safety of the cash which the municipal authorities have in their possession is an important matter. This cash sometimes affords one of the best opportunities for private exploitation. These conditions are commonly understood and do not need to be reiterated here.

An outline of the contents of the detailed statements should in general be as follows:

1. Total cash—the receipts of each collecting agency, subclassified according to sources; the total disbursements of each disbursing officer (if there is more than one such officer) with reference to the corresponding warrant numbers; the difference between receipts and disbursements added to the balance at the beginning of the period to produce the balance at the end of the period.

2. Cash in bank—with respect to each depository used, the following data: (1) name of depository; (2) capital and surplus of depository or other statement of its financial condition; (3) security held by municipality, showing nature of security and amount; (4) rate of interest; (5) amount of legal or executive limit on deposits; (6)

amount on deposit; (7) amount advanced to pay coupon interest; (8) total amount in depository.

3. Cash on hand—amount held by each custodian.

4. Taxes accrued and uncollected—with respect to each year of levy, the following data: (1) taxes uncollected on real property; (2) taxes uncollected on personal property; (3) other taxes uncollected, giving title of tax and amount; (4) total taxes uncollected; (5) taxes on property bought in by municipality at sale; (6) taxes estimated uncollectible; (7) accrued penalties and interest on taxes estimated collectible.

5. Special assessments accrued and uncollected—with respect to each year of levy, the following data: (1) total amount uncollected; (2) amount uncollected, against city at large; (3) amount delinquent; (4) amount on property bought in by municipality at sale; (5) amount estimated uncollectible; (6) accrued penalties and interest on amount estimated collectible.

6. Accounts receivable of city owned public utilities —with respect to each year of accrual, the following data: (1) accounts receivable of each utility; (2) total accounts receivable; (3) charges against property bought in by municipality at sale; (4) accounts receivable estimated uncollectible; (5) accrued penalties and interest on amount estimated collectible.

7. Miscellaneous accounts receivable—with respect to each source of revenue represented by the accounts, the following data: (1) the organization unit responsible for the collection; (2) date of accrual; (3) amount of accrual.

8. Temporary loans not due—with respect to each loan the following data: (1) type of loan and law authorizing the issue; (2) date of issue; (3) date of maturity; (4) rate of interest; (5) amount outstanding; (6) interest accrued and not due.

9. Special assessment bonds (similar to 8 above).

Detailed Statement of Investments

The detailed statement of revenues and of current assets provide the supporting data ordinarily required for the resources shown on Exhibit A, except with respect to investments. Certain further information concerning this resource is needed to corroborate the investments shown on Exhibit A and explain the reserve for amortization of premium also shown on that statement. A detailed statement of investments should provide this information. Equally important information as a basis for management of investments should also be provided on such a statement.

It is suggested that this statement show with respect to each type of investment, the following data: (1) title or description of the investment; (2) nominal interest rate or latest dividend; (3) purchase price; (4) market value at date of statement; (5) reserve for amortization of premium; (6) per cent that purchase price is of total purchase price of all investments; (7) actual rate of earnings on the basis of purchase price; (8) purchase price (or other book value) held in each fund.

Detailed Statement of Appropriation Balances

The detailed statements of liabilities provide the supporting data ordinarily required for the obligations shown on Exhibit A, except with respect to unexpended balances of appropriations. There could, of course, be a total unexpended balance shown on Exhibit A, which would denote that in the aggregate the authorizations of expenditures in any one fund had not been exceeded; yet separate items of appropriation could at the same time be exceeded while these excesses would be more than offset by unexpended balances of other items. A detailed examination of the unexpended balance of each item of appropriation should be made as to the encumbrances

against it resulting from outstanding purchase orders and contracts, the restrictions placed upon its expenditure by executive allotments, the sum originally appropriated, the transfers that have been made to or from the appropriation, and the expenditures incurred. All these factors either denote the observance of legal restrictions upon expenditures imposed by appropriations or constitute a basis for various courses of action that may be taken with respect to the unexpended balances as an obligation.

The various sums to be shown in a detailed statement of appropriation balances that serves these purposes may be outlined with respect to each item of appropriation as follows: (1) original appropriation; (2) transfers from other appropriations; (3) transfers to other appropriations; (4) final appropriation; (5) expenditures incurred; (6) unexpended balance of appropriation; (7) unliquidated encumbrances; (8) unencumbered balance, either unallotted or allotted. Usually detailed appropriations are made only from the general fund. When they are made from other funds, the statement outlined above would be required for each of those funds.

Statement of General Bonded Debt

One of the most important matters for consideration in the preparation of the budget is that of the general bonded debt. The means of financing special assessment bonds and short term loans are provided for when the loans are issued. These are expressed as fund obligations on Exhibit A. The general bonded debt, however, as well as the interest thereon, remains to be financed from taxation in the future periods. Furthermore, the general bonded debt outstanding and the future charges on that debt affect the extent to which additional debt may be incurred and are factors to be considered in the general administration of debt.

Explanation may sometimes be required concerning the bonds authorized and unissued shown as a resource on Exhibit A, the accumulated requirements of sinking funds shown as an obligation on the same statement, the proceeds from bond sales shown as income on Exhibit B and the debt payments shown as expenditure on the latter statement. All this information is closely related and may be expressed on one statement. On such a statement of the general bonded debt, the data would be shown separately with respect to each issue of bonds. It may be outlined as follows: (1) citation of legal authorization, (2) purpose, (3) term, (4) date of maturity, (5) rate of interest, (6) amount of future annual serial requirements, (7) amount of estimated future annual sinking fund requirements, (8) amount of next annual interest requirement, (9) amount of total future interest requirements, (10) total amount authorized, (11) amount authorized and unissued, (12) amount outstanding at beginning of year, (13) amount issued during the year, (14) amount of payments during the year, (15) amount outstanding at end of the year, (16) amount accumulated in sinking fund, (17) net debt, and (18) amount of same issue held in sinking funds. The *borrowing margin* should also be shown as a part of this statement, and the method of its calculation.

Statement of Permanent Properties

While other than fiscal matters are involved in the administration of permanent properties, the acquisition and custodial care of such properties become matters of finance and proprietorship both when the budget is prepared and during the continuous administration of expenditure. If these matters are given sufficient consideration, the existence of properties should be accounted for and the expenditures for acquisition and repairs explained.

To account for the existence of the properties is to show that all properties for which expenditures have been made and which have not been discarded or otherwise disposed of are still in the possession of the city government. In other words, it means the establishment of evidence of the proprietorship or disposition of all properties acquired. To do this in statement form requires attention to be given to these factors: the classification of the different kinds of property, so that each item of property can be uniformly described and hence readily designated and identified; the adoption of a value that will conveniently express the worth of proprietorship together with additions and deductions during a period; and the designation of the respective organization units having custody of the different items of property.

The classification of property, particularly of equipment, is a subject that has received able attention but is too extensive for much discussion here.[1] Since the volume of property owned, acquired or discarded, frequently cannot be expressed in number of pieces or other units of physical measurement, a money value is a convenient index. The cost value is better for this purpose than market value, appraised value, or depreciated value, because it does not fluctuate and hence the successive inventories will reflect increases or decreases due only to transactions.

The expenditures for the purchase and repair of property lead to explanation along two general lines. Were the purchases and the repairs necessary or advisable? Could they have been accomplished with less expenditure? The latter question is a matter of cost accounting and is dealt with in the next chapter. It can scarcely be presumed that financial statements alone should give

[1] See Francis Oakey, *Principles of Government Accounting and Reporting*, p. 408.

a conclusive answer to the first question but they can provide certain data as evidence which may be supported and qualified with textual explanation. The index of whether or not the purchases were necessary or advisable is the classification of expenditures according to replacements of old property and the acquisition of new property. The age of the property replaced and the accumulated expenditures for repairs during its life should evidence the necessity for replacement. At the same time this information should indicate the advisability of replacing property rather than of making continued repairs. Major construction projects should be explained as to the amount of the accumulated expenditure to date and how much more will be required in order to complete them. All of the data so far referred to may be expressed on the statement of permanent properties.

The complete data which should be expressed on the statement of properties, may be outlined with respect to each item of property as follows: (1) description of property according to standard classification; (2) organization unit having custody; (3) cost value at beginning of period; (4) expenditures during the period for replacements; (5) expenditures during the period for new acquisitions, showing additions and betterments to old properties, and added properties; (6) accumulated expenditures on uncompleted work; (7) estimated additional expenditures necessary on uncompleted work; (8) cost value of property discarded during the period; (9) cost value at end of period; (10) annual depreciation; (11) expenditures for repairs during the period; (12) accumulated expenditures for repairs to date.

Statement of Stores

To a greater or less extent, commodities are necessarily purchased in advance of requirements because obviously no city government can conveniently purchase each day

exactly what it needs to use on that day. This buying in advance may be systematically organized as under the centralized purchasing procedure outlined in Chapter IX, or it may be more or less haphazard as when separate departments purchase independently of one another.

Whatever the purchasing procedure, certain information is necessary to the proper control of the stock of commodities carried, as to use, custody and storage. If too large a quantity is carried in stores, the city government may tie up resources in this way, that are needed badly for other purposes, or it may lose the advantage of a falling market in prices. If too small a quantity is carried, emergency purchases may have to be made at extravagant prices. If the use and custody of stores is not guarded, the commodities may be wasted or stolen. If physical storage is not watched, storage space may be disadvantageously used or the stores exposed to damage.

A statement of stores should provide information concerning these various conditions. Both the statement of permanent properties and the statement of stores relate to a common subject—the custody and administration of property. They are parts of the same exhibit, namely, Exhibit E. The proposed data to be shown on the statement of stores with respect to each class of commodities in stock, may be outlined as follows: (1) location of storage point; (2) number of the bin in which small articles are placed; (3) capacity of space provided for storage; (4) per cent of above space occupied; (5) unit in which quantity of the commodity is measured (pounds, feet, gallons, reams, sheets, pieces, etc.); (6) description and code designation; (7) quantity on hand at beginning of the period; (8) quantity purchased during the period; (9) total number of purchase orders issued during the period; (10) unit prices paid during the period, showing highest, lowest, and average prices; (11) quantity transferred from other storage points during the period; (12)

quantity issued during the period; (13) average quantity issued per month during the period; (14) quantity transferred to other storage points during the period; (15) quantity condemned or lost during the period; (16) quantity on hand at end of the period; (17) maximum quantity which average needs permit to be kept on hand; (18) minimum quantity which average needs require to be kept on hand.

Balance Sheet and Operation Statement of City Owned Utilities

Whether or not all municipally owned public utilities should be maintained in a self-supporting condition is a matter of financial policy. The method of financing such utilities largely determines what this condition is, or is not, going to be. For this reason there should be a means of knowing if each of the utilities which the municipality may own and operate is financially on a self-supporting basis.

The balance sheet of a municipally owned public utility is in the nature of what is commonly referred to in commercial accounting as a "general balance sheet." Such a balance sheet contains a statement of all assets—both current and capital—and likewise of all liabilities and reserves. Thus, it presents a statement that may be used at the time of the dissolution or sale of the utility. If the utility is being maintained on a separate and independent basis, its total assets will at least equal its total liabilities and reserves.

The various interpretations bearing upon the method of financing a city owned utility will be reflected in such a balance sheet. The method, however, will not necessarily be expressed there. If the municipality charges taxes against the utility, they will be reflected in that statement either as a liability, if they have not been paid, or as so much less cash, if they have been paid.

Only the effect upon assets and liabilities, of other transactions, will similarly appear. A statement of income and expenditures (or statement of operations), however, shows what income and expenditures have been included to affect the assets and liabilities of the utility as presented on the balance sheet. A balance sheet (Figure 6) and a statement of operations (Figure 7), which are adapted to a water utility, are herewith presented to illustrate the contents of such statements.[1]

CONDENSED BALANCE SHEET

Assets

Plant, property and equipment (cost basis)	$
Stock and stores	
Accounts receivable	
Cash (general current funds)	
Cash (special funds)	
Sinking funds	
Miscellaneous current assets	
Total Assets	

Liabilities

City of ....., equity (capital investment)	$
Funded debt (bonded obligations)	
Mortgage liabilities (*other than evidenced by bonds*)	
Current liabilities (*immediate demands against cash*)	
Accrued liabilities (*those accrued but not due—interest, etc.*)	
Depreciation reserve	
Other reserves	
Surplus (unappropriated)	
Total liabilities	

FIGURE 6. Condensed Balance Sheet of a Municipally Owned Utility.

While depreciation in municipally owned utilities is treated at length in Chapter XV,[2] it may be briefly viewed here from the accounting standpoint. The two common methods of meeting depreciation in utility properties are the *replacement method* and the *reserve method.* If the

[1] These statements are provided in the uniform accounting system adopted by the New England Water Works Association in 1921. The italics are the writer's paraphrase.

[2] See below, pages 525 ff.

CONDENSED STATEMENT OF INCOME AND PROFIT AND LOSS

Operating Revenues

Earnings from sales of water to private consumers	$
Less: Abatements, refunds, etc.	
Earnings from sales of water to the municipality	
Earnings from use of water by the water works utility itself, and included in its operating charges and expenses	
Total operating revenues (water)	

Operating Expenses

Source of supply expense	$
Transmission expense	
Distribution expense	
Commercial expense	
General expense	
Undistributed expense	
Show separate total of above	
Depreciation reserve charge	
Contingencies (extraordinary)	
Taxes	
Total operating expenses	
Operating profit	
Nonoperating revenues (not water; net profit on mdse. sales, jobbing, rentals, etc.)	
Gross income (forward)	

Deductions from Gross Income

Interest on funded debt (net)	$
Interest on floating debt (net)	
Interest on other liabilities (net)	
Miscellaneous deductions	
Total deductions	
Net Income	

Disposition of net income: *Any appropriations of net income to municipal funds, should here be deducted and "balance of net income" then carried to "surplus account."*

FIGURE 7. Condensed Operation Statement of a Municipally Owned Utility.

replacement method is used, the depreciation is identical with the expenditures for replaced properties, and it is automatically included in the expenditures for such properties. It should be shown as *replacements* on the de-

tailed statements of expenditures supporting Exhibit B. If the reserve method is used, the amount of depreciation met in this way is the same as that added to the reserve during the accounting period. It should then be shown on the accompanying statement of operations (Figure 7) under "depreciation reserve charge."

Frequency of Statements for Administrative and Legislative Purposes

The administrative value of the various financial statements described above depends, of course, in a large measure upon the intervals at which they are presented to those concerned and the promptness with which they are prepared. If the accounting records are adequate and kept up to date, no great difficulty need be experienced in preparing the statements at such intervals as may be required and within a few days after the close of the period to which they relate.

The intervals between statements will be dictated by local requirements and no general rule can be laid down. A statement comparable to Exhibit A or to Exhibit C, with supporting data, is sometimes prepared daily for the city manager or the mayor. In many municipalities, once a month might be sufficient for these statements, except as they may be required more frequently. A statement of appropriation balances is often prepared monthly. This period ought to be sufficient, but at such times as the balances require close watching, this statement may be needed more often. Department heads should get a statement of their respective appropriation balances at least monthly and under some circumstances daily when the balances are low. The detailed statement of revenues should also be prepared at frequent intervals in support of the corresponding items on Exhibit A. The other statements are not needed so often; in fact, some of them may be required only once a year.

Annual Financial Report for Publication

The object of published annual reports should be to account to the citizens for the management and proprietorship of the administration, in such a way as to provide a basis for intelligent public action. Usually these reports fall far short of such an accomplishment because they are tardy in appearing and meaningless to the layman. It is not uncommon for an administration to go out of office or stand for reëlection before its last report is published. Sometimes the budget is passed before the public is given much more than a casual or hasty explanation of the finances of two years previous.

With an adequate system of accounting, the reports can be published promptly, within a month or two at most, after the close of the year. But the real difficulty is to set up a report that can be understood by the layman. The popularization of reports in nontechnical language has been proposed but not much has been done toward such a development. Several cities publish reports that have the quality of clarity in presentation, even though no attempt is made at popularization. Unfortunately, many reports are so set up as to defy interpretation. The use of graphs, as explained in Chapter VII, would aid in the interpretation of the financial data and in making the reports more popular.

The published annual report should be complete. It should contain all the information that has been provided for in the statements previously discussed. Of course, under circumstances where any of the detailed statements do not point to matters that are of importance, they should be dispensed with.

Private Funds Separately Reported Upon

The financial statements discussed in this chapter deal only with public funds—that is, those which are used for

public purposes. Private funds—that is, those held in the custody of the city government to be used for private purposes or returned to their owners—should not be related to public funds in the reports. They should be reported upon in a separate statement which is prepared at least annually.

Usually the assets of private funds held by a city consist only of cash balances derived from different sources, the more common of which may be classified as follows: (1) retained percentages on contracts, (2) deposits to guarantee fulfillment of contracts, (3) deposits to insure return of borrowed government property, and (4) deposits to insure restoration of streets. The statement of private funds should consist of the cash balances still on hand classified according to the above, or similar, sources.

System of General Accounting Records

The general accounts of a city government may be defined as those records in which its financial transactions are evidenced, recorded, and classified as financial information. Modern accounting practice provides three classes of records to cover such transactions in this manner. These are known as *vouchers* or *documents, registers* or *journals,* and *ledgers.* A device known as *double entry bookkeeping* is also employed to insure accuracy in recording.

The Vouchers

The vouchers are the original or documentary evidence of financial transactions and consist of tax receipts, license and permit documents, invoices or other claims, payrolls, purchase orders or contracts, and so forth. These are often referred to as *receipt vouchers, disbursement vouchers,* or *journal vouchers* according to the class of transactions to which they relate. They are used in

the auditing control procedure and as the authority for recording the respective transactions in the registers and ledgers as well as in the passing of cash. We have seen in Chapter IV, the manner in which they are used in the auditing control procedure. After they have been recorded, they should be systematically filed in such a way that they can be easily referred to.

The Registers

A register is a chronological record of one class of transactions. Thus there will be a register of cash receipts, one of cash disbursements, one of sales, one of purchase orders, and one of approved claims. The registers of cash receipts and of disbursements are often combined in one record called a *cashbook*, although this is not usually so convenient as the separate records of receipts and of disbursements.

A separate entry is made of each document in the respective register, preferably each day. At the end of the month, the totals of the registers are *posted* to the general ledger accounts. For this purpose, separate columns are provided on the register sheets in which the sum of each entry is entered according to the ledger account to which it is to be posted. A typical form (Figure 8) for a register of approved claims is presented on the accompanying page. This form illustrates the use of these columns as well as the classification of other data with respect to each entry, which explain the respective transactions and refer to other records.

There are always a certain number of adjustments which cannot conveniently be entered in the registers. For this purpose a *general journal* is used, providing separate columns for the debits and credits to be made to ledger accounts. In this record, the monthly postings from the registers may also be entered, although this is not often done.

The Ledgers

A ledger may be defined as a record in which the financial transactions are classified by means of what are known as *accounts* of the several kinds of resources, obligations, income, expenditures and surplus. Since the account is the means of classification, it is fundamental as a basis of information.

We have seen in the preceding part of this chapter that the financial statements require certain information. In Chapter IV it was stated that the information to be provided through accounts for the purposes of auditing control concerned amounts owing to the municipality and the unexpended balances of appropriations. The same information is also required for the financial statements. In fact, as we have already said, the latter determine the accounts to be kept in the ledgers.

It would be difficult to proceed further, however, without providing for some arrangement of the numerous accounts required by the financial statements. This is done first by grouping the accounts in different ledgers discussed below.

The General Ledger

We have seen that Exhibits A, B, and C, summarize information that is contained in greater detail on supporting statements or schedules and also part of the information that is contained on Exhibits D and E. The general ledger is likewise a ledger that contains accounts which summarize the accounts contained in detail or subsidiary ledgers and that controls their accuracy. Hence, the general ledger may contain accounts which coincide with the information as it is summarized on the exhibits.

By the application of accounting technique, the accounts in the general ledger may be further classified and summarized. The nature and grouping of the accounts

CITY OF ..... Sheet No.: .....

Fund: ..... REGISTER OF APPROVED CLAIMS Month of: ..... 19..

Claim No.	Voucher-Warrant No.	Order No.	Date of Claim	Date of Registration	Name of Claimant	Nature of Claim	Code	V	Amount of Claim	Distribution			
										Current Expenses	Properties	Sundry Accounts	
												Acct. Code	Amount
1	2	3	4	5	6	7	8	9	10	11	12	13	14

Full size of sheet, about 17" x 11". A loose-leaf binder is preferable.

NOTE: The space for *fund* implies that a separate series of sheets is to be used for the claims against each fund; not, however, for each appropriation. One alternative to this arrangement is to provide for but one series of sheets and summarize the total charges against each fund at the end of each month.

FIGURE 8. Form for Register of Approved Claims.

contained in the general ledger may be outlined as follows:

1. An account should be set up with each resource and obligation in each fund and each fund surplus required for Exhibit A, the accounts being grouped according to the funds to which they apply. The accounts in funds which contain only one or two resources or obligations may be grouped together. These accounts are known as *fund accounts.*

2. An account should be maintained with each asset and liability and the surplus, required for Exhibit C, contained in one group. These are known as *proprietary accounts.*

3. A separate account should be maintained with *revenues,* total *current expenses, current obligations,* and *properties* required for Exhibit B. These would be included in the group with (2) above and would complete a *trial balance* for this group under double entry bookkeeping. There would also be included in the same group, separate accounts for *general bonded debt* and *contra general bonded debt,* these two offsetting each other on a trial balance. As a technicality likewise, the balance of the *properties account* would be *closed* to the *surplus account* of the *proprietary group* at the close of each fiscal period.

4. An account should be set up with each asset and liability of each utility and each utility surplus, required for Exhibit F, the accounts being grouped according to the utilities to which they apply. And in each of these groups, there should be accounts to show revenues and expenses. These accounts in each group would complete a trial balance for the respective groups under double entry bookkeeping.

It is not necessary to apply consistently the above outline of accounts if duplication of work can otherwise be avoided without dispensing with accuracy and clarity

in the accounts. Hence the accountant, in making an installation of a general ledger, would at once see that the accounts of assets, liabilities, revenues and expenditures of utilities could be excluded from the proprietary group of accounts because they are repeated in the separate groups of utility accounts where they cannot be dispensed with. These accounts could be eliminated from the fund groups, however, only when a separate fund was established for each utility, the increments to and expenditures from which coincided with the revenues and expenditures of the respective utility.

The accountant might also find it possible, under a simple set of circumstances, to combine the proprietary group of accounts with the fund groups. One circumstance that would make this inadvisable, however, would be when several separate tax rates are levied for different purposes but collected from each taxpayer in one sum. Most accountants would further find it advisable to introduce separate accounts in the proprietary group for the total assets of sinking funds and endowment funds with corresponding reserve accounts to offset. Other accountants would exclude these assets from the proprietary group and depend upon the fund accounts of such assets.

This discussion cannot presume to instruct in the technique of accounting of which double entry bookkeeping is one of the elements. There are numerous valuable treatises on this subject, one or more of which may be found in almost every library. For the purposes of this discussion we may observe merely that double entry is a device to insure accuracy in the accounting records and particularly in the general ledger where its use is most apparent. As is commonly known, the double entry system provides that the increasing and decreasing elements to the balance of each account should be posted to separate sides or columns of the account. The column on the

left of the account page is known as the *debit* side and the column on the right as the *credit* side. A transaction that increases the balance of one account will decrease the balance of another. For example, tax receipts will increase the balance of the cash account and decrease the balance of the account for taxes outstanding. Hence, this system provides that all transactions shall be posted simultaneously to the debit of one account and to the credit of another account. At the end of each month a *trial balance* is taken of the debits and credits to each account as posted. If the total debits equal the total credits, the assumption is that the accounts have been accurately posted.

The Detail Ledgers

Detail or subsidiary ledgers are those which contain accounts that support or provide detailed information of respective accounts in the general ledger. The accounts which they support in the general ledger are called *controlling or summary accounts.* The total of the balances of all accounts in a detail ledger should agree with the balance of the controlling account which it supports. For example, there should be a *revenue ledger* which contains an account with each source of revenue, showing the respective sums accrued. The total of the balances of all these accounts should agree with the balance of the revenue account in the general ledger.

Detail ledgers then would provide the means by which accounts which follow the detail statements or schedules may be arranged and classified. It has been seen that each schedule supports one or more items on the exhibits. Therefore, while the general ledger accounts parallel the exhibits, the detail ledger accounts parallel the schedules; schedules support exhibits and likewise, detail ledgers support the general ledger. In addition there would be detail ledgers which provide accounts to record the de-

tails shown on Exhibits D and E for which no schedules are provided.

It will be recalled that some of the statements provide for data which does not represent transactions and hence will not be contained in the debits and credits to the accounts or the account balances. For example, Exhibit D shows various data respecting date of issue and maturity of each bond issue, interest rate and so forth. Whenever such data is called for, it would be recorded in spaces provided at the top or elsewhere on the account page.

The accountant will often find ways of combining detail ledgers, so that one detail ledger may support several accounts in the general ledger. For example, he may provide for a *special assessments ledger.* In this ledger there could be one page or series of pages for each assessment project which would show in separate sections the balance of assessments uncollected, the expenditure incurred and, as memorandum at the top of the page, the estimated or authorized expenditure. Hence, by making a few calculations, balances could be arrived at which would support the general ledger accounts for recoverable expenditure and unexpended balance of appropriations in each fund, as well as special assessments uncollected, while actual expenditures could be compared with estimated expenditures.

The detail ledgers which should generally be provided may be listed as follows: *bank ledger,* containing a ledger account with each deposit account; *special assessments ledger; stores ledger,* containing an account with each commodity in stores; *investments ledger; appropriation ledger; contract ledger; bond ledger; property ledger; revenue ledger;* and the *expenditure analysis.* Records which are a combination of register and detail ledger are those for temporary loans, the tax rolls or duplicates, and the special assessment rolls. If the miscellaneous sales are not numerous, that register may be made to an-

swer the purposes of a ledger by indicating payments opposite the entries of the respective sales.

The expenditure analysis deserves particular mention, because its existence and form depend so much upon the extent to which the expenditures are analyzed. If no classification is attempted beyond that which is provided by the appropriation classification, then the appropriation ledger would provide the only record needed for that purpose. If the appropriation classification follows organization units, no classification of that nature would be required in the expenditure analysis. If the appropriation classification is sufficiently detailed as to objects of expenditure, the expenditure analysis will not be needed for that purpose. If, however, a functional classification is introduced which does not coincide with organization units or if any analysis is made other than that which corresponds with the appropriation classification, an expenditure analysis will be required to that extent. Consequently, it is not possible to predict or prescribe the general contents of this analysis record. It can be visualized, however, as a series of sheets with several columns in which the sums of the expenditures would be distributed according to the analysis used with reference to the respective documents evidencing the transactions. The analysis would not include expenditures for debt payments or properties because the former would be detailed in the appropriation ledger and bond ledger, and the latter in the property ledger.

Ledger and journal records are now being kept almost entirely on loose-leaf forms in the more progressive city governments, and all entries are made in these records through the use of modern bookkeeping machines which automatically show balances where required and check all totals. This dispenses with the cumbersome long-hand methods, promotes accuracy, and helps to expedite the city's business. Many accountants still object to the use

of loose-leaf forms for all accounting records, since the pages of such records can be destroyed with little or no physical evidence of the fact. They, therefore, insist that either the general journal or the general ledger, preferably the former, should be contained in a bound book.

The Officers Keeping the Records

If the administrative organization is so arranged that the controller is the chief accounting officer and the treasurer the collecting and disbursing officer, then the former should keep all the records referred to above, except the register of cash receipts, the bank ledger, and the tax and assessment rolls. These records are needed by the treasurer in recording his transactions.

The treasurer should report the cash receipts to the controller, as explained in the discussion of auditing control. The disbursements in the treasurer's bank ledger should correspond with the controller's register of cash disbursements, since the latter would be made up from the warrants or warrant-checks on the basis of which the treasurer draws or signs the checks. The controller should periodically audit the tax and assessment rolls to see that they agree with his controlling accounts.

In many large cities, departments that collect money necessarily keep various kinds of records of their receipts. This departmental record keeping should be diminished by centralizing the collection of receipts under the treasurer. Departments, likewise, often keep appropriation ledgers, but under well organized procedure, particularly in smaller cities, the controller can keep the departments advised currently of their balances. Departments also keep a certain amount of cost data. This is desirable when there is sufficient work of this kind in any one department to warrant its being done there. The methods of cost accounting are discussed in the following chapter.

CHAPTER VI

COST ACCOUNTING

Cost accounting may be defined as a procedure for determining the costs of commodities produced, work performed, or services rendered by the different units of the city government. In private enterprises cost accounting is the means of disclosing the profit or loss on each unit. In public business, however, we are not concerned with profit or loss in the commercial sense; rather we are concerned with adjusting cost to output, the latter being the product, work, or service produced or performed. By the application of cost accounting, it is possible to test such product, work, or service as to quantity, quality, or results attained, and thus to determine whether or not the cost of it is reasonable or unreasonable. Hence the information developed through cost accounting is valuable for budget making purposes; and what is more, it is indispensable to businesslike municipal administration. Such information furnishes the basis for day-to-day administrative control over the operations of the various units of the city government.

Cost accounting is a branch of general accounting, which is discussed in the preceding chapter. It deals with departmental and institutional expenditures, particularly with expenditures for operation. It goes into greater detail with reference to these expenditures than does general accounting. In other words, cost accounting begins where general accounting leaves off and carries the expenditure analysis back to the unit basis. The information developed by cost accounting thus ties into the

general accounts. These accounts control the cost records so far as the totals of the latter are concerned.

Cost accounting as applied to city governments has not been developed to anything like the extent that it has in industries. Of course, there has not been the incentive of profit in the former as in the latter. Recently, however, the application of cost accounting to municipal operations has been stimulated by the desire to keep down expenditures and by the effort to improve the quality of administration. It has much to contribute toward these ends. Certainly, more attention should be given by specialists in finance and accounting to the immediate development of cost accounting methods for the various departmental and institutional operations of city governments. In working out these methods, valuable suggestions may be gathered from the cost accounting experience of commercial and industrial enterprises. The general technique of cost accounting for a city government is much the same as that for a business or an industry. Only the ends to be served are different.

The present discussion is limited to a bare outline of the essentials of cost accounting as applied to municipal operations. It covers cost analyses and units, the application of cost accounting to city units by way of illustration, the cost accounting records, and the relation of the cost accounts to the general accounts.

Cost Accounting Analyses and Units

A cost accounting system is designed to produce a series of detailed expenditure analyses. In order that these analyses may be of use to administrative officers, they should be tabulated, summarized and totaled as to units. They should also interlock with the general accounts for purposes of accounting control.

It is important to know the basis upon which the cost data should be analyzed so as to derive information that

will be useful and to set forth this information to the best advantage. The cost accounting units should be clearly understood in order to avoid making useless analyses and to prevent erroneous interpretation of cost data. These things are now briefly treated.

There are three types of analyses essential to cost accounting, namely, an analysis by organization and working units, an analysis by operative divisions, and an analysis by purchases. These are defined and discussed in the subsequent sections.

Analysis by Organization and Working Units

The analysis by organization and working units is of primary importance in governmental cost accounting because it is the means of establishing administrative responsibility. The organization unit is a department, bureau, division, or agency of the city government, already defined in the discussion of expenditure classifications for budget making purposes.[1] The working unit is based upon specific operations or kinds of work. It is a subdivision of the organization unit, such as a pumping station, a fire unit, or a gang of street laborers engaged at a particular task. In any organization unit or working unit, some person is in charge of the operations and can be held responsible for them. This person may be only a foreman or a boss in the case of a working unit. The detailed analysis of costs is usually obtained from the working units and the grouping of these units in the cost accounting records depends somewhat upon the information desired by the administration.

In commercial cost accounting the method of determining the units to serve as a basis of cost analysis is termed "departmentalization"; and the major units are called "departments," while the minor units are often designated as "cost centers." The department or cost

[1] See above, page 60.

center has two characteristic features: it comprehends a certain operation or kind of work, and it has some person responsible for its management. In these respects, the organization and working units of the city government are analogous to the cost departments and centers of commercial and industrial enterprises.

The municipal organization and working units and their relation to each other may be illustrated as follows:

Department of public works
  Bureau of street cleaning and waste disposal
    Garbage removal and disposal
      Collection (loading gang)
      Hauling (truck and driver or wagon and driver)
      Disposal (incinerator or reduction plant)

The department and the bureau mentioned above are organization units, while the loading gang, the truck and driver or the wagon and driver, and the incinerator or reduction plant are working units. The employees in each working unit are responsible to a foreman or boss, who in turn is responsible to an administrative officer of the bureau and finally to the head of the department. Thus responsibility is clearly fixed from the working unit up to the head of the organization unit.

"Garbage removal and disposal" is an *operative division* of the bureau work. Such a division, as it develops in cost accounting, is explained below.

Analysis by Operative Divisions

The operative divisions are largely of a functional character. They are established for the purpose of grouping or confining the cost analyses to particular phases of the work or service. This is done with the idea of giving significance and weight to the cost data. The value and even the accuracy of the cost figures depend in a large measure upon the intelligence and judgment shown in setting up the operative divisions.

In manufacturing concerns the establishment of operative divisions is not a complicated matter, since the cost figures pertain to the production and distribution of a commodity. Usually, in private businesses of this kind, the divisions of operation are three, namely, manufacturing, selling, and administration. The manufacturing division includes all factory costs, that is, materials, wages, and plant expenses, such as rent, insurance, light, power, depreciation, and maintenance. The selling division comprises all expenses necessary to the sale of the commodity, such as salesmen's salaries, commissions, traveling expenses, and advertising. The third division covers the cost of the general administration of the business, including officers' salaries, central office expenses, and legal expenses.

Much the same operative divisions as those just outlined may be applied to municipally owned utilities in arriving at cost figures. Such utilities are in the nature of manufacturing concerns, since they produce certain commodities or render definite services. For example, the operative divisions of a water supply system are: production, distribution, and general administration. There may be further subdivisions of these main divisions, but the significant costs for the general administrator are assembled on the basis of the latter.[1] The factors that enter into the setting up of operative divisions in the case of transportation utilities are somewhat more complicated.[2]

It is more difficult to set up the operative divisions of the service departments and institutions of the city government. By way of illustration, we may take the preceding outline of garbage removal and disposal. In this case the department of public works is concerned with many major activities, one of which is street cleaning

[1] For a more complete explanation, see below, pp. 204 ff.
[2] See below, Chapter XV, p. 523.

and waste disposal. The work of street cleaning and waste disposal, included under the bureau by that name, consists of different phases which are important from the standpoint of cost figures. Besides garbage removal and disposal, there is the removal and disposal of rubbish and ashes, as well as the cleaning of the streets by sweeping and the removal of this waste. In some cities the garbage and rubbish are collected together and disposed of in an incinerator; in others they are collected separately and the garbage is sent to a reduction plant or dumped. Ashes are generally collected separately and dumped. Where the work is performed separately garbage removal and disposal should be covered by one set of cost figures, rubbish removal and disposal by another set, and removal of ashes by still another set. If garbage and rubbish are removed together, only one set of cost figures is required. This indicates how methods of handling work and local conditions influence the setting up of costs. The removal of garbage separately constitutes an operative division, which may be subdivided according to the distinct operations involved. If the garbage is removed and dumped, these operations consist of loading and hauling; if it is removed and reduced, either by burning or rendering, there is added the operation of reduction.[1] Cost figures should be established for each of these three operations. These figures are derived by an analysis of the expenditures of the working units, the operations coinciding in this instance with these units.

Analysis by Purchases

The analysis of costs by purchases is made on the basis of the labor, supplies, materials, repairs, and other things required to produce a commodity, to carry on an

[1] Sometimes municipal garbage dumps require certain supervision. In such cases, the labor and expenses involved should be shown in the cost accounts as a division separate from collection and hauling.

operation, or to perform a service. In other words, such analysis follows the objects and payments included under current expenses and current obligations in the classification of expenditures previously outlined in the discussion of the budget and as summarized by the general accounting statement of expenditures.[1]

By way of illustration we may again use the removal and disposal of garbage. The analysis by purchases should show the costs as follows: the collection costs in terms of the wages of the members of the loading gang; the hauling costs in terms of the wages of the driver, the gasoline, oil, and tires used by the truck, repairs to the truck, etc.; and the disposal costs in terms of the foreman's salary, the wages of the men who operate the plant, supplies, fuel, power, small tools, repairs, plant depreciation, etc.

Direct and Indirect Costs

In analyzing costs it is desirable to distinguish between those that are direct and those that are indirect. In a manufacturing enterprise, the direct cost is that which enters into and forms a part of the commodity produced and which may be directly charged to it, namely, for labor and materials; while the indirect cost includes all other expenses which may be charged to the production of the commodity, such as incidental manufacturing expenses, and selling and administrative expenses. Indirect costs are incurred as a result of the operation of the business and not specifically for the production of the particular commodity. Direct costs can be known exactly, while the indirect costs must be more or less arbitrarily apportioned.

When applied to governmental agencies a somewhat broader meaning attaches to direct and indirect costs.

[1] See above, page 64, for the expenditure classification, and page 159, for the general accounting statement of expenditures.

In the case of a municipally owned water utility, the production costs and the distribution costs are generally regarded as direct costs, while the costs of general administration—expenses of reading meters, billing, collecting, and general overhead offices—are usually considered indirect costs.[1] Some water utilities distribute the indirect costs to the direct costs, that is, to production and distribution costs; others set the indirect costs up as a separate division under the heading of commercial and administrative costs, or general and miscellaneous costs. All operating expenses, as well as depreciation, interest, taxes and emergency surplus, are included in the direct and indirect costs.[2]

The application of direct and indirect costs may be further illustrated by reference to the removal and disposal of garbage. The direct costs are those of collection, hauling, and disposal, which are enumerated under the preceding section.[3] The indirect costs are the salaries and expenses connected with the overhead administration of the work in the bureau of street cleaning and waste disposal and the department of public works, and also the salaries and expenses in connection with the handling of the payrolls and purchases for this work in the department of finance. These indirect costs may be apportioned to the work, or they may be considered separately. It is not necessary, as in the case of the water utility, to apportion them, since the determination of the price of a commodity which is sold to customers is not involved.

Cost Units

The establishment of correct units of measurement for each operative division or for each working unit is an

[1] See above, pages 196-197.
[2] See below, Chapter XV, pages 523 ff.
[3] See above, page 198.

important factor in compiling and using cost data. Comparisons of costs for different periods require the use of such units of measurement to which the costs can be reduced. A comparison of totals, when costs fluctuate from month to month, is oftentimes meaningless; but when unit costs are secured, such a comparison can be readily and accurately made. In other words, unit costs are in the nature of index numbers; they facilitate comparisons.[1]

The unit of measurement for cost analysis varies widely for the different city activities. When something is produced, it is the natural unit of production, such as square yards of street paving, cubic yards of concrete, thousand gallons of water, cubic feet of gas, kilowatts of electric current. When the important thing is the work performed, the unit is adjusted to the measurement of work; for example, horse days, tons, ton miles, ton hours, or number of inspections. When work and commodities are combined to render a service, the unit is selected with the idea of measuring the service, as for example, patient days or student hours. In other words, there are three more or less distinct types of cost measurement units, which we may call production units, work units, and service units. The production units are the simplest to devise, since they are based on concrete and tangible products. The work units are based on measurable operations. They are devised with the idea of checking up on the amount of work performed; although the work may be rendering a service, the latter is not so important from the administrative standpoint as the former. The service units are based on certain measurable factors that serve as indices to the real objects to be attained. The objects themselves are not directly measurable for the purposes of cost accounting. For example, we cannot arrive by the application of cost

[1] See below, page 224.

accounting methods at the value of city hospital service to discharged patients. In the long run the patients may have been benefited by their sojourn in the hospital, or they may not. This we cannot determine at the time they are discharged; but we do know that they have been in the hospital a certain number of days and these we can use as a means of measuring the service rendered by the hospital.

The unit cost is found by dividing the number of units of measurement into the cost of the operative division, working unit, or organization unit. This may be illustrated by taking three pumping units of a municipal water system. The first unit pumps 108,826,600 gallons at a cost of $4,118.49, or a cost of $.0378 per thousand gallons. The second unit pumps 43,747,200 gallons at a cost of $2,075.65, or a cost of $.0474 per thousand gallons. The third unit pumps 233,230,200 gallons at a cost of $6,742.49, or a cost of $.0288 per thousand gallons. The three units pump a total of 385,804,000 gallons at a total cost of $12,963.63, or a cost of $.0335 per thousand gallons.[1] A comparison of the unit costs of each of the three pumping units with the unit cost of all water pumped shows immediately that two of the pumping units are more expensive to operate than the other unit. A further analysis of the operating cost of each pumping unit according to expense classes would reveal the points of difference. This should enable the administrative officer in charge of the water system to reduce any extravagant expenditures during the ensuing period. Inefficient operation within the same pumping unit may be detected by comparison of present unit costs with those of previous periods. Likewise, the cost of producing water for a future period may be estimated by using the unit costs of present and past periods; this

[1] These figures are taken from the statement of operating expenses of the water department of Holland, Michigan, for 1923.

is valuable to the administrative officer for budget making purposes.

Standard Costs

Standard costs are estimates of what costs should be under as perfect conditions as it is possible to secure. They are artificial figures; while actual, average, or normal costs are based upon real figures. Standard costs are used for comparative purposes, the object being to make the actual costs conform to them. They are not a substitute for actual costs; they supplement the latter by furnishing the administrator a medium by which he can judge costs and thus enable him to improve operating conditions. For example, the actual cost per unit may be one dollar while the standard cost is one-half that amount. This would indicate that the administrator ought to be able to reduce the actual cost.

Standard costs may be formulated for many of the municipal activities by a comparison of the actual unit costs of those activities from a large number of city governments.[1] In gathering the data and in setting up the standard costs careful judgment must be exercised if these costs are to be anywhere near correct. The local conditions must be taken into account and the diverse elements that enter into the costs must be properly evaluated. Unless this is done, the standard costs will not be worth anything, as is sometimes the case. Such costs should be revised as price levels and general conditions change.

Application of Cost Accounting to City Units

The cost accounting analyses and methods previously discussed may be illustrated by application to certain

[1] Sometimes cost data from industrial and commercial enterprises may be valuable in formulating standard scales or rates. See below, the standardization of municipal salaries, page 252.

units or divisions of the city government. For this purpose we have selected water supply, garbage removal and disposal, and hospital service. These three functions represent the major types of municipal activities from the standpoint of cost accounting; that is, they involve the use of production units, work units, and service units.[1]

As Applied to City Owned Water Supply

A municipal water supply system is supposed to produce and deliver a sufficient quantity of wholesome water for all domestic and commercial uses and to provide water for city purposes, such as street flushing and fire protection. Naturally, the cost of producing the water is the important thing from the cost accounting point of view. The unit of measurement for metered water is either gallons or cubic feet; the former unit is perhaps more commonly used. The generally accepted unit in determining costs is a thousand gallons of water. The various operation costs of the water system are analyzed on this basis. Cost accounting analyses are applied with the idea of furnishing the officer in charge of the water system certain information that is useful for purposes of administrative control, and also a basis for fixing the customer's rate for water used. Two practical methods of making such analyses are briefly outlined below.

The water department of Detroit, Michigan, analyzes its operation costs as follows:[2]

[1] Public works construction and maintenance constitute a large field in which cost accounting is extensively used at the present time. Such work involves the use of both production units and work units in various combinations. In construction and repair work the costs are very often ascertained on the basis of "projects" or "jobs." It is a convenient method for this type of work, but not generally applicable to city activities.

[2] This water system is city owned and the analysis referred to is for the year ending June 30, 1925. During this year the pumpage as recorded by venturi meters was 68,533 million gallons. See annual report of department of water supply for the year ending June 30, 1925, p. 7.

1. Production costs
   a. Intake and purification costs
      (Purchase analysis)
   b. Low lift station costs
      (Purchase analysis)
   c. Filtration plant
      (Purchase analysis)
   d. Steam power costs
      (Purchase analysis)
   e. Cost of operating pumps
      (Purchase analysis)
   f. Proportion of overhead expense
      (Details)
      Total cost of water delivered to mains

2. Distribution costs
   a. Distributing system costs
      (Purchase analysis)
   b. Operation and maintenance of service connections
      (Purchase analysis)
   c. Proportion of overhead expense
      (Details)
   d. Meter service costs
      (Details)
      Total distributing cost of water
      Grand total cost of water

The above analysis covers all operating costs, including the costs of depreciation. There are certain costs, regarded as "nonoperating," which are not included. These include the interest on bonded indebtedness, care of pumping station grounds and roads, cleaning mains, and changing house numbers. Some utility engineers regard these costs as operating costs which should be added to those above in order to find the total cost of supplying water. In fact, this is the practice in keeping the cost accounts of some water systems, as will be noted later.

In the above analysis there are only two major operative divisions, namely, "production" and "distribution." The cost of administration is distributed to these two major operative divisions, instead of being set up as a separate division. Of course, this must be done on a somewhat arbitrary basis. Under each subdivision of the main operative divisions there is an analysis by purchases, as indicated. For example, under the first

subdivision, namely, "intake and purification costs," the purchase analysis is shown under the following four headings: operation of intake system, miscellaneous supplies and expense, maintenance of intake system, and depreciation of intake system.[1] The other subdivisions are analyzed in a similar manner.

The water department of Holland, Michigan, analyzes its operating costs as follows:[2]

1. Pumpage
   a. 5th Street station (steam)
      (Stand-by service for fire protection)
      (1) Operation
          (Purchase analysis)
      (2) Maintenance
          (Purchase analysis)
   b. 19th Street station (electric)
      (Total pumpage: gallons)
      (1) Operation
          (Purchase analysis)
      (2) Maintenance
          (Purchase analysis)
   c. 28th Street station (electric)
      (Total pumpage: gallons)
      (1) Operation
          (Purchase analysis)
      (2) Maintenance
          (Purchase analysis)
   d. East 8th Street station (electric)
      (Total pumpage: gallons)
      (1) Operation
          (Purchase analysis)
      (2) Maintenance
          (Purchase analysis)
      Total cost of electric power pumpage
   Total cost of all pumpage (not reduced to M gallons basis)
2. Distribution
      (1) Operation
          (Purchase analysis)
      (2) Maintenance
          (Purchase analysis)
      Total distribution cost
3. Commercial (reading meters and billing charges)
      (Purchase analysis)
      Total commercial cost

[1] These groups may be further analyzed on supporting schedules to show the objects or services purchased.

[2] The Holland water system is much smaller than the Detroit system. The report for the year ending December 31, 1924, from which this analysis is taken, shows the total pumpage amounted to 359 million gallons. See this report, pp. 19 ff.

4. General (administrative overhead)
   (Purchase analysis)
   Total general cost
5. Undistributed (insurance, taxes, interest, etc.)
   (Details)
   Total undistributed cost
   Grand total operating costs

It will be noted that the above analysis of the Holland water department is more detailed in some respects than that of the Detroit department. Each pumping station, or working unit, is set out in the analysis under the first operative division. This arrangement shows the cost of operating each station, the number of gallons pumped, and the unit cost of pumping. Since one pumping station is devoted to stand-by service for fire protection, its pumpage is not reduced to the unit cost basis.[1] The purchase analysis is divided as between operation and maintenance costs. Commercial costs and general costs are set up as separate operative divisions and are not distributed to the other divisions as in the preceding Detroit analysis. There is added a so-called "undistributed" division, which includes principally the "nonoperating" costs under the Detroit analysis. These costs are all included in the Holland analysis in arriving at the cost per thousand gallons of water furnished. Only capital expenditures and charges for debt redemption are excluded.

If comparisons between the unit costs of providing water in different municipal systems are made, considerable judgment and caution should be exercised. The operating costs of such systems vary greatly, depending upon the type of system and the local conditions.[2]

As Applied to Garbage Removal and Disposal

In removing and disposing of waste materials, such as garbage, the process is usually divided into three

[1] See below, Chapter XV, page 539.
[2] See below, Chapter XV, page 523.

distinct operations, as follows: (1) collection (loading), (2) hauling, and (3) disposal (reduction).[1] A convenient unit of measurement for each one of these operations is tons of waste. When loading, hauling, or reduction is expressed in tons, ton-miles, or ton-hours, we have a fair measure of the amount of work involved.

In the case of rubbish or garbage disposal, some such analysis as the following should be made for the purposes of cost accounting:

1. Collection (loading)
   (Purchase analysis by the various working units)
   Total cost of loading
2. Hauling
   (Purchase analysis by the various working units)
   Total cost of hauling
3. Disposal (reduction)
   a. Incinerator, No. 1
      (Purchase analysis)
   b. Incinerator, No. 2
      (Purchase analysis)
   c. Reduction plant, No. 1
      (Purchase analysis)
   d. Reduction plant, No. 2
      (Purchase analysis)
      Total cost of reduction
4. Administration
   (Analysis of overhead costs chargeable to work)
   Total cost of administration
   Grand total cost of garbage disposal

The cost of loading per ton may be ascertained by merely dividing the number of tons of garbage or other waste collected into the total wages and expenses. The problem, however, is not as simple as this would signify. A number of variable factors which affect the unit cost are involved, such as the character of the material, the size and character of the district served, the season of the year, the cost of labor in the locality, and other local conditions. The cost of loading is also influenced by the interval that elapses between collections and the size of the wagons or trucks used.

[1] See above, page 197. Discussion of unit costs for these operations in Herring and Greeley, *Collection and Disposal of Municipal Refuse*, Chapters V and XII.

The cost of hauling may be computed in the same manner as the cost of loading, using the ton-mile as the basis. The ton-mile is equivalent to hauling a ton one mile. The length of the haul is between the point of last collection and the place of delivery, this distance being covered twice for each load. The variable factors in hauling are the rate of travel, the weight of the load, and the cost of team and driver, or of the truck and driver. The rate of travel is influenced by the time of day when the hauling is done; if done at night or early in the morning, hauling is less impeded.

The disposal of garbage or rubbish by incineration or reduction involves the operation of a special plant. The general cost accounting methods applicable to such plants are similar to those applied to pumping units. The unit of measurement is the ton, sometimes reduced to the ton-hour basis. If the plant operates twenty-four hours per day and disposes of 40 tons of rubbish or garbage, the ton-hours are equivalent to 960. The unit cost of operation may be arrived at on either the ton or the ton-hour basis. A number of factors tend to modify the unit cost of operation. The more important of these are the rate of combustion or chemical treatment necessary to suppress odors, location of plant with reference to area from which rubbish or garbage is collected, and local wage rates. If the plant is designed to reduce garbage, then several more or less valuable by-products may be made in the process of reduction. The more important of these are garbage grease, a low-grade fat used in manufacturing soaps and glycerines, and tankage, used as a base or filler for commercial fertilizers.

As Applied to Hospital Service

Municipal hospital service may be grouped under three major operative divisions, namely, care of patients,

operation and maintenance of plant, and general administration. These divisions may be further subdivided as indicated below. The most generally accepted unit of measurement of hospital service is the patient day. If 20 patients are in a hospital for 10 days, this is equivalent to 200 patient days. All hospital costs are reduced to this basis for comparative purposes.

The cost accounting analysis for a general hospital may be set up on the following basis:

1. Care of patients
   a. Medical and nursing care (including pharmacy and ambulance service)
      (Purchase analysis)
   b. Housing, dietary, and laundry
      (Purchase analysis)
   c. Other services to patients
      (Purchase analysis)
      Total cost of care of patients

2. Operation and maintenance of plant
   (Purchase analysis)
      Total cost of operation and maintenance of plant

3. General administration
   (Purchase analysis)
      Total cost of general administration
      Grand total cost of hospital service

The direct costs of hospital service are covered by the first operative division above, while the indirect costs are included under the second and third operative divisions.[1] Pay patients in city hospitals may be charged with only the direct costs of the service, or they may be charged with both the direct costs and the indirect costs at the discretion of the city authorities. In many cities a charge is made for pay service which is not based on either direct or indirect costs, but arrived at more or less arbitrarily.

Usually the hospital is included as a unit under the department of health or some other city department. Hence there are certain overhead costs due to supervision

[1] The direct costs of hospital service may be further subdivided in a more detailed analysis of hospital costs.

of the hospital service on the part of the departmental head or his subordinates. The general accounting and purchasing work conducted for the hospital in the department of finance may also be regarded as indirect costs of the hospital. These costs may be apportioned to hospital service and added to the general administrative costs of the hospital. They are, however, costs for which the superintendent or head of the hospital cannot be held directly responsible. He has no control over them. Such costs are for that reason referred to by cost accountants as "uncontrollable" costs, while those for which the administrative officer may be held responsible are called "controllable" costs. It is, of course, the latter group of costs that is the more important from the standpoint of the administrative officer and the one that should be subjected to careful analysis in the cost accounting.

The Cost Accounting Records

The cost accounting records in their simplest form consist of a summary cost statement with supporting schedules, and a set of sheets upon which the detailed cost analyses are made. The summary cost statement contains the information required for administrative and informational purposes. This statement shows in outline form the essential cost data for the particular units to which it relates.[1] In the case of the three city functions used above as illustrations of the application of cost accounting, the summary cost statement for each of these functions would present cost data upon the basis of the outline that is set up in the discussion.[2] Each summary cost statement may have several supporting schedules presenting the data in greater detail, just as in the case of the summary budget statement

[1] See the accompanying form, Figure 9.
[2] See above, pages 205, 208, 210.

SUMMARY COST STATEMENT

Organization Unit ..... Period .....

Analytical Groups or Classes	References to Supporting Schedules *	Total Amount	No. of Units	Unit Cost	Remarks
1	2	3	4	5	6

* Summary statement may show only operative divisions and the supporting schedules show the details according to working units and expense classes.

FIGURE 9. Form for Summary Cost Statement.

and the general accounting exhibits or statements.[1] The general form of the summary cost statement determines, as in the case of the general accounting exhibits, the types of analyses and the contents of the detailed cost records.

In order to prepare the summary cost statements, cost records must be kept in which the operating expenditures are currently analyzed according to the analytical groups or classes presented on these statements. The setting up of the detailed cost records is largely a matter of bookkeeping technique. Such records may, of course, be designed in several ways. A practical method is briefly described below.

There should be two different sets of cost records in which the entries of expenditures are made. One set of these records should be on summary cost sheets and the other set on detailed cost sheets. The accompanying forms (Figures 10 and 11) illustrate how these sheets may be set up for both the summary and detailed analyses. The sheets for each set, that is, the summary and the detailed, should be placed in a loose-leaf binder for convenience in handling.

Entries should be made daily on the detailed cost sheets from each approved invoice, payroll or stores requisition. Each of these documents should have a number assigned to it, and this number should be entered on the detailed cost sheet at the time the sums represented on the document are distributed. Preceding the entry of any document, the distribution to organization unit, operative division, and working unit should be indicated thereon by the use of a code similar to the one presented in Chapter III.[2]

At the end of each month, or oftener, if summary cost statements are required, the totals of the entries made

[1] See above, pages 37 and 147 ff.
[2] See above, page 66, for code.

SUMMARY COST SHEET

Organization Unit ..... Sheet No. .....

Operative Division ..... Period .....

Working Units or Operative Subdivisions	Reference to Detailed Cost Sheets	Total Amount	No. of Units	Unit Cost	Distribution by Main Classes of Purchase Analysis			
					Personal Services	Contractual Services	Commodities	Etc.
1	2	3	4	5	6	7	8	9

FIGURE 10. Summary Cost Sheet for Cost Accounts.

in each section of the detailed cost sheets should be posted to the summary cost sheets for the corresponding organization unit or operative division. From these summary cost sheets the summary cost statement and supporting schedules may be made up at any time they are desired by the department heads or by the city executive.

The departments of public works and education in a few city governments are starting to use the Hollerith system in connection with their cost accounting. The cost data are punched on tabulation cards from the original documents, that is, the invoices, payrolls, etc. These cards are then sorted and totaled by electrical contacts in automatic machines. The summary cost statement, described above, is secured directly from the tabulation cards, and so quickly as to be of maximum value to the administrator in controlling the work of his department. Detailed costs supporting the summary statement are also secured from the same cards. In fact, these cards fulfill the purpose of the entries on the cost sheets, both detailed and summary, which are described above, thus eliminating the use of these sheets. Another advantage of the Hollerith system in making cost analyses, in addition to its great celerity and accuracy, is the fact that summary cost statements may be produced first and the detailed costs later. This is not possible under the ordinary methods of cost accounting now in use in most city departments. A practical objection to the Hollerith system, however, is that the volume of cost accounting in many city departments does not justify the expense of installing the sorting and tabulating machines which are necessary to operate the system. If a satisfactory method of bringing together the cost accounts of the various city departments into one office were worked out, it would then be possible to use the Hollerith system in practically all cities.

DETAILED COST SHEET

Organization Unit .....
Operative Unit .....
Working Unit .....

Sheet No. .....
Period .....

Document Reference or Code	Total Amount	Detailed Distribution of Purchases *								
		Personal Services		Contractual Services			Commodities			Etc.
		Salaries	Wages	Postage	Printing	Etc.	Food	Coal	Etc.	Etc.
1	2	3	4	5	6	7	8	9	10	11

* This analysis may be continued across two sheets placed facing each other in the loose-leaf binder.

FIGURE 11. Detailed Cost Sheet for Cost Accounts.

Relation of Cost Accounts to General Accounts

It should be apparent from the preceding discussion that the cost accounts use the same expenditure data as the general accounts only in very much greater detail. The totals of the analyses on the summary cost sheets should agree with the city controller's accounts as shown in his appropriation and expenditure ledgers. This furnishes the proper means of control over the cost accounts.

Who should keep the cost accounts of the various city departments and institutions? Although this might conceivably be the duty of the controller, especially in a small city, no satisfactory method of bringing together the cost records in the controller's office has yet been worked out. The common practice is for the different departments and institutions to keep their own cost records. The summary cost statements from these records are furnished to the responsible administrative officers in the organization units. These statements should be sent to the mayor or the manager and also to the city council upon request. Copies of all such statements should be filed with the city controller. He should use them in connection with his audit of the cost accounts and in the preparation of the city budget.

When the cost accounts are kept by the different organization units, they should be audited periodically by the controller. The interlocking entries between the cost accounts and the general accounts greatly facilitate the auditing work and make the audit more accurate and dependable. The audit should extend beyond merely seeing that the figures are correct; it should determine if the cost accounting system is being properly carried out and if the information supplied by it is useful in all cases.

CHAPTER VII

GRAPHIC STATISTICS IN MUNICIPAL FINANCE

Graphs are drawings which transform the statements and tables of the accountant and the statistician into pictures—pictures that convey at a glance the essential facts contained in such statements and tables. The art of making these drawings is called graphics. Graphs enable the "man in the street" to understand the workings of his government and how it is financed as he has not before been able to do. They help the city councilmen to understand the intricate problems of planning and controlling the city's finances. They permit the administrator to follow closely day after day the operations and the expenditures of the various activities of the city government, and yet do not burden him with the multitudinous details. The use of graphs has a very salutary influence upon financial and other reporting; it compels the fiscal and administrative officers to present their data in orderly and systematic form.

Graphics in combination with elementary statistical methods is now commonly referred to as graphic statistics. The application of graphic statistics to financial information is a recent achievement, one that has striking possibilities. A treatment of municipal finance would be incomplete without some discussion of this subject.

The field of graphic statistics has already grown so extensive that it cannot even be outlined in this chapter. Many volumes have recently been written on graphics

and statistics, and still these subjects have by no means been exhausted. An attempt has been made in this chapter to present only the bare essentials of chart making supported by such discussion of statistical methods as seemed to be required for an elementary understanding of the subject of graphic statistics as applied to municipal finance.

The mass of facts and figures resulting from the financial operations of any city government is practically valueless for informational purposes, unless properly classified, tabulated and presented. The classification and presentation of financial data in connection with budget making have already been discussed in Chapter III.[1] The presentation of financial data from the accounting standpoint has been described in Chapters V and VI. In this chapter we shall treat financial data from the point of view of statistical and graphic presentation.

Tabular Presentation

The advantages of presenting financial information in tabular form, rather than serial enumeration, are almost too obvious to need mention. In fact, tabulations very generally constitute a large part of the financial reports now issued. Much can be done, however, to render these tabulations intelligible to the general public if consideration is given to the arrangement of subject matter and to the form of the tables.

Each table should be a unit. If too many comparisons are attempted in one table, the particular point it is desired to bring out will be obscured. The amount of detail readily grasped by the eye is limited, so that it is much better to construct several tables to describe complex conditions rather than try to show everything in a single table.

The contents of a table should be arranged so that the

[1] See above, pages 59 ff.

various relationships which may be worked out from the data will be readily apparent. Clear titles for both table and columns are also essential, if the table is to be easily understood. The main title should be complete and self-explanatory. It should epitomize the contents and general purport of the table. Care to arrange the wording most effectively will tend to shorten the title and to eliminate ambiguous phraseology. If the columns of the table are grouped into a few main subdivisions, repetition of explanatory phrases and descriptive headings is reduced to a minimum. Column headings need then refer only to the contents of the column.

Reference to the contents of a table may be facilitated by numbering the columns. In this way the reader can trace down a reference in the text to a particular column with a minimum of delay and difficulty. The numbering should be placed in a single horizontal row between the column headings and the main body of the table.

Legibility would seem to be an obvious requirement for a printed document but this factor is overlooked in the preparation of many financial reports. Three points should be mentioned in this connection:

1. Care should be taken to avoid eye strain by the selection of suitable type, and by the quintuple grouping of items. Instead of printing the table entries in a long, unbroken series, the eye can follow the column more easily if the items are arranged in groups of five with each group separated by a blank space. This plan is employed in the United States census reports with obvious advantage.

2. Tables should be filled in only where data exist. Unnecessary entries serve only to obscure the real "meat" of a table. No misunderstandings will arise in reading the table if the practice is followed consistently of leaving blank spaces where data are not available or are nonexistent.

3. Column headings should be printed in the same direction as other wording on the page. An unnecessary annoyance is caused if the reader must crane his neck or shift the page to decipher the column captions.

Statistical Averages

A preliminary step in statistical analysis is deriving the "simple values" from the basic data. These values may be either single items, aggregates, or averages, depending on the nature of the comparison to be made. The aggregate, or sum, may be readily obtained from the classification grouping. An average is a "measure of central tendency" or the most typical value of a series of items. The three types of averages, which have particular application to this field, are the *mean,* the *median* and the *mode.* These may be briefly explained by reference to the following series of thirteen numbers:

21, 13, 6, 6, 5, 5, 4, 4, 4, 4, 3, 2, 1; total 78.

The mean—more exactly called the arithmetic mean—is found by dividing the sum of these items by the number of items; that is, 78 divided by 13 gives a mean of 6. The median is the middle item or number when the series is arranged in order of size; that is, in the above series, it is the seventh number, or 4. If this series had an even number of items, then the median would lie between the middle items. The mode, sometimes called the inspectional average, is the item or number of greatest frequency, which in this case is 4.

The mean is probably the best type of average to use in analyzing financial information. It takes into account each item in the entire series and thus can be said to be typical of all the items in the series. It is also relatively easy to compute. But perhaps the greatest advantage for popular presentation is that its meaning is well known and its significance is readily grasped.

The median, as contrasted with the mean, is not unduly influenced by extreme items. The addition of a large item to the upper end of a series will alter the size of the mean by several points, while the median will be shifted only one item on the scale. The median, therefore, eliminates the effect of extreme items.

The mode has severe limitations for general use. In some series no distinct mode is discoverable. Unlike the mean, it cannot be calculated by a simple arithmetical process. When no well-defined mode exists, and when the data are to be subjected to further mathematical treatment, the mean or the median should be used as a measure of central tendency.

No dogmatic statement can be made regarding the use of averages. It can be said, however, that the correct average to use is the one which will give the truest picture of the central tendency evident in the data. It is a good plan to compute the several types of averages and then select the one for use which seems best adapted to the distribution in question.

Statistical Ratios

The relationship between two quantities may be expressed as a rate or ratio. A ratio is a derived figure which states the numerical relationship of one quantity to another quantity. It substitutes for two unwieldy quantities one simple number which embraces the significance of the two quantities and at the same time facilitates comparison between them by speaking in terms of a common denominator.

The ratio is probably the commonest statistical measure in use today. One need cite only a few expressions involving the use of the ratio to point out its prevalence. The "batting average" of the baseball player, for example, is a ratio between two aggregates expressed on a percentage scale. "Four out of five," "death rate,"

"miles per hour," "index," "tax rate," etc., all involve this statistical principle.

Ratios, as applied to financial data, show certain relationships. These relationships can be illustrated in the following manner. Let us suppose that the aggregate expenditures of a city government were $1,000,000 for 1920 and $1,500,000 for 1925. The latter amount is larger than the former in the ratio of 100 to 150. Then we may compare the expenditures for each of the various functions or departments of this city government for 1920 with those of the same functions or departments for 1925. If the health department expended $50,000 in 1920 and $80,000 in 1925, the ratio of expenditures for this department is 5 to 8, or 100 to 160. We may also take the total expenditures for 1920 and divide them among all the functions or departments and thus find the ratio of the expenditures for each function or department to the total expenditures of the city government. If this is done with the total expenditures for 1925, we may then compare the expenditures for each function or department as between 1920 and 1925. It will then become apparent to us that the expenditures of the health department constituted a greater percentage of the total expenditures of the city government for 1925 than for 1920, it being 5 per cent in 1920 and 5.33 per cent in 1925. At the same time we may find the ratio of the expenditures for one function or department to those of another function or department for a given year. If the fire department expended $100,000 during 1925, it expended 6.66 per cent of the total expenditures of the city government for that year, or as compared with the health department in the ratio of 5.33 to 6.66. Since the percentage scale is identical with the number of units in the dollar, we can say that out of every dollar expended by the city government 5 1-3 cents went to health and 6 2-3 cents to fire protection.

Another type of ratio, and one that is commonly used in analyzing financial data, expresses the relationship between two different quantities as the number of one category per unit of another category. The tax rate, per capita costs, and unit costs are ratios of this sort. Such ratios are valuable if the relationship between the two particular categories is a significant one. For example, "wealth per capita" expresses the amount of wealth which would fall to each inhabitant if the total wealth of the community were distributed equally among the entire population. Likewise, the "tax rate" is the amount of money that must be levied on each dollar of the assessed valuation of property within the city's limits in order to finance its government. The factors involved in the determination of unit cost ratios are discussed at length in Chapter VI.

Index Numbers

Frequently it is desired to indicate the variation over a period of years in certain phases of the city's finances. For example, the administrator may wish to show the annual changes which have taken place in the tax rate, the aggregate assessed valuation, the yearly expenditures, or the bonded debt of the city. These may be shown as absolute amounts, and as a rule are so given in financial reports, but in this form the significance of the changes can be deduced only with great difficulty.

By using relative or index numbers, comparison is greatly facilitated between two or more synchronous variables or between a "base year" and some other specific period. In converting the data from absolute to relative amounts, the value for some definite period, either a year or an average of several years, is taken as a "base" and is indicated as 100. Data for subsequent years are then expressed as percentages of this base.

For example, suppose that we wished to compare the

trends in the total cost of government and in the bonded indebtedness of New Rochelle, New York. Our purpose is to determine what changes have occurred in these two items for the years 1910 to 1922 with reference to the period 1900 through 1909 as a base for comparison. The data for this comparison are given in the accompanying Table I.

TABLE I

USE OF INDEX NUMBERS IN COMPARING THE COST OF GOVERNMENT AND BONDED INDEBTEDNESS IN CITY OF NEW ROCHELLE

Period	*Absolute Amounts* *		*Derived Index Numbers*	
	Cost of Government	*Bonded Indebtedness*	*Cost of Government*	*Bonded Indebtedness*
(1)	(2)	(3)	(4)	(5)
Base = Average of Years 1900-1909, incl.	$ 659,360	$1,397,950	100	100
1910	$1,172,417	$2,355,737	178†	169
1911	1,531,976	2,499,658	232	179
1912	1,347,199	2,915,148	204	209
1913	1,484,512	2,997,368	225	214
1914	1,292,132	3,148,846	196	225
1915	1,246,302	3,095,046	189	221
1916	1,580,766	3,105,546	240	222
1917	1,545,157	3,198,846	234	229
1918	1,517,175	3,244,338	230	232
1919	1,803,469	3,095,476	274	221
1920	2,689,700	3,214,013	408	230
1921	2,879,115	3,485.013	437	249
1922	2,596,632	3,891,013	394	278

* Data from Report of City Comptroller, 1922, Part I, pp. 118 and 133.

† Sample computation: $\frac{1,172,417 \times 100}{659,360} = 178$

In columns 2 and 3 of this table are given the absolute amounts. A very general idea of the trend of each factor may be had by comparison of successive years with the base period. But if we reduce the absolute amounts to relative or index numbers, as is done in columns 4 and 5,

this will not only enable the reader to follow each trend more easily, but will also facilitate his making a comparison between the two trends. The two series are now expressed in terms of a common scale, and one element in comparing the two series is eliminated. It will be evident from this example that several series involving absolute amounts of widely varying size, may be easily compared by reducing them to this one common scale. The comparison of the trends may be further facilitated by depicting the index numbers of the series on a graphic chart.

Graphic Presentation

Graphs are especially valuable in presenting many kinds of financial data, since in this form the data can be more easily grasped and comparisons more quickly made. In the management of municipal finances, graphs are of great assistance to the administrator. They are also very helpful to the members of the council and to the citizens in understanding the problems of city finance. They should, therefore, have a definite place in the budget document, in the analysis of the day-to-day operations of the administration, and in the financial and general reports of the city government.

Graphs, however, may be misapplied with the result that the data portrayed by them may give an erroneous or exaggerated impression. Hence, it is important that the administrator in applying graphic methods should have in mind certain rules which will do much to insure accurate and effective presentation. We can do no better than to quote the rules set forth in the 1915 report of the "Joint Committee on Standards for Graphic Presentation."[1] These rules are as follows:

[1] This committee consisted of representatives of engineering, accounting, statistical, economic, and biologic societies, of municipal research agencies, and of the United States Bureau of the Census and Bureau of Standards. Its report was published by the American Society of Mechanical Engineers.

1. The general arrangement of a diagram should proceed from left to right.

2. Where possible represent quantities by linear magnitudes, as areas or volumes are more likely to be misinterpreted.

3. For a curve the vertical scale, whenever practicable, should be so selected that the zero line will appear on the diagram.

4. If the zero line of the vertical scale will not normally appear on the curve diagram, the zero line should be shown by use of a horizontal break in the diagram.

5. The zero lines of the scales for a curve should be sharply distinguished from the other coördinate lines.

6. For curves having a scale representing percentages, it is usually desirable to emphasize in some distinctive way the 100 per cent line, or other line used as a basis of comparison.

7. When the scale of a diagram refers to dates and the period represented is not a complete unit, it is better not to emphasize the first and last ordinates, since such a diagram does not represent the beginning or end of time.

8. When curves are drawn on logarithmic coördinate the limiting lines of the diagram should each be at some power of ten on the logarithmic scales.

9. It is not advisable to show any more coördinate lines than necessary to guide the eye in reading the diagram.

10. The curve lines of a diagram should be sharply distinguished from the ruling.

11. In curves representing a series of observations, it is advisable, whenever possible, to indicate clearly on the diagram all the points representing the separate observations.

12. The horizontal scale for curves should usually read from left to right and the vertical scale from bottom to top.

13. Figures for the scales of a diagram should be placed at the left or at the bottom or along the respective axes.

14. It is often desirable to include in the diagram the numerical data or formulæ represented.

15. If numerical data are not included in the diagram, it is desirable to give the data in tabular form accompanying the diagram.

16. All lettering and all figures on a diagram should be placed so as to be easily read from the base as the bottom, or from the right hand edge of the diagram as the bottom.

17. The title of a diagram should be made as clear and complete as possible. Subtitles or descriptions should be added if necessary to insure clearness.

In addition to the above rules, a few others have been suggested as being of practical value. These are as follows:

1. Units of measurement should be selected which will allow desired curves to be plotted without exaggeration.
2. When the chart covers a long space of time, it is well to place the vertical scale at the right as well as the left. Similarly, it may be advisable to put dates at the top as well as the bottom.
3. Reading matter should not appear in the body of the graph.
4. When facts of widely differing magnitude are compared, a double scale may be used, but the base line should always be the same for both scales.
5. Whenever it is desired to represent rates of increase or decrease, the ratio (or logarithmic) chart should be used.[1]

The foregoing rules or standards apply particularly to curve or line charts on arithmetic scales. There are, however, several other kinds of charts which may be used in certain ways to illuminate fiscal data, to aid in financial administration, and to set forth organization and procedure. These are bar charts, ratio or logarithmic charts, area and volume diagrams, circle or pie charts, hundred per cent bar charts, organization and procedure charts. In the following sections these different kinds of charts are briefly described and in most cases illustrations are presented showing the practical application of such charts to municipal finance. It is hoped that this discussion will stimulate the ingenuity of the reader who is interested in chart making. For a more extended treatment of graphic presentation the reader is referred to recent books on the subject.[2]

Bar Charts

The bar chart is useful in showing municipal income or expenditures where it is desired to make comparisons by years or by sources or purposes. The total proposed expenditures of the budget may be shown on bar charts by expenditure classes, by organization units, and by

[1] See W. H. Smith, *Graphic Statistics in Management*, p. 63.

[2] Among the best of such books the following may be noted: Karl G. Karsten, *Charts and Graphs;* William Henry Smith, *Graphic Statistics in Management;* John R. Riggleman, *Graphic Methods for Presenting Business Statistics.*

funds. The means of financing in the budget may be shown on bar charts according to sources.[1]

The accompanying cut (Figure 12) shows how a simple bar chart should be set up. The data for this chart are taken from a preceding table.[2] The scale has been placed at the top of the chart rather than the bottom. This arrangement seems to be preferred at the present time in making bar charts. It should be borne in mind that the length of the bars is the significant feature of this type of chart. The width of the bars should be uniform, otherwise the bars may tend to produce area illusions. The long bars should not be bent, curved, or broken in order to fit them to a small field. They cannot then be compared with the short bars.

If we wished to show how the total expenditures in the accompanying chart were distributed among a few major functions of the government, such as education, public works, and public safety, we could cut up each bar into the proper proportions and indicate these relative lengths by distinctive markings. This would then be what is known as a compound bar chart. The complete data used in dividing up the bars should be shown at the left-hand side of the chart opposite the particular bars to which they relate.

Comparisons between the expenditures and the income of a city government for a given year or several years may be shown on a compound bar chart. Instead of one bar for each year, there would be two bars, one representing expenditures and the other income, and each having a distinctive marking.

Often the vertical bar chart is used to set forth the above data. As the name implies, the bars are drawn vertically instead of horizontally on the chart field. The data for each bar are placed at the bottom of the chart

[1] See above, page 43.
[2] See above, page 225.

and the scale is set up on the left-hand side. The zero line of the scale should always be shown on such charts, else an erroneous impression will be conveyed. Vertical bars may be cut up into their respective component parts in the same way as horizontal bars. In such cases the data should be entered in orderly rows below the base line.

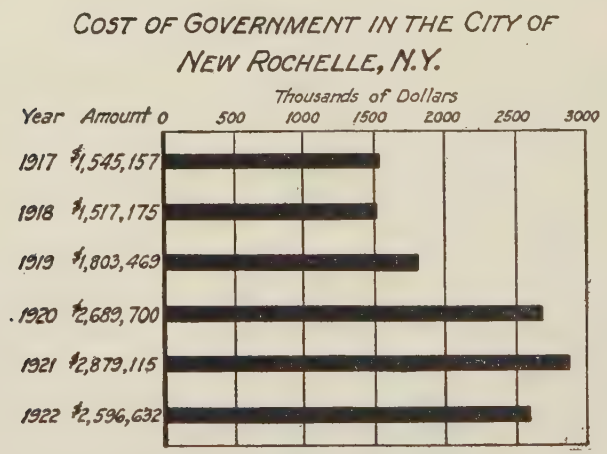


FIGURE 12. A Simple Bar Chart.

Curve or Line Charts

The curve or line chart is often more useful than the bar chart in presenting financial data. This is due to the fact that the curve condenses a series of data presented by a number of bars into one line. Several series may thus be represented and conveniently compared on a single curve chart.

In the day-to-day financial administration, especially budgetary control, curve charts are very valuable. In carrying out the allotments, the relation of the actual operating expenditures of a department or institution to the budget plan or to the past year's expenditures may be shown month after month by means of a graph.[1] The

[1] See above, pages 106 ff.

accompanying chart (Figure 13) illustrates the application of the curve to this particular problem of budgetary control for a given department. When this chart is made up at the beginning of the budget or fiscal year, the past year's expenditures of the department are plotted on it and also the budget allotments for the current year as approved at that time. As the year advances, the actual expenditures of the department are plotted month by month on the chart. It is then a simple matter to compare at a glance the actual expenditures with the budget allotments and with the past year's expenditures. Should the expenditures exceed the allotments, the chief administrative officer will find it out within a month and proper adjustments can be made immediately. If it becomes necessary to revise the allotments at the end of any quarter, the curve representing the allotments for the remainder of the year should be replotted so that all data will be presented on the chart. In replotting the curve the old line should be left and the new one inserted in colored ink. The old curve may be found valuable for comparative purposes at the end of the fiscal year, or when the budget is being prepared.

Another application of the curve chart in budgetary control is in following the relation of the immediate demands for cash upon a given fund to the cash receipts in that fund during each month of the fiscal year. It is very important that the financial authorities of the city government should know just what this relation is, and should be guided accordingly.[1] This information may be clearly shown upon a chart like the accompanying one (Figure 14). The solid lines represent cash receipts in the fund and the broken lines the expenditures incurred against, or the immediate demands for cash upon, the fund. These lines are plotted from month to month; one pair of lines represents the monthly cash receipts and

[1] See above, page 108.

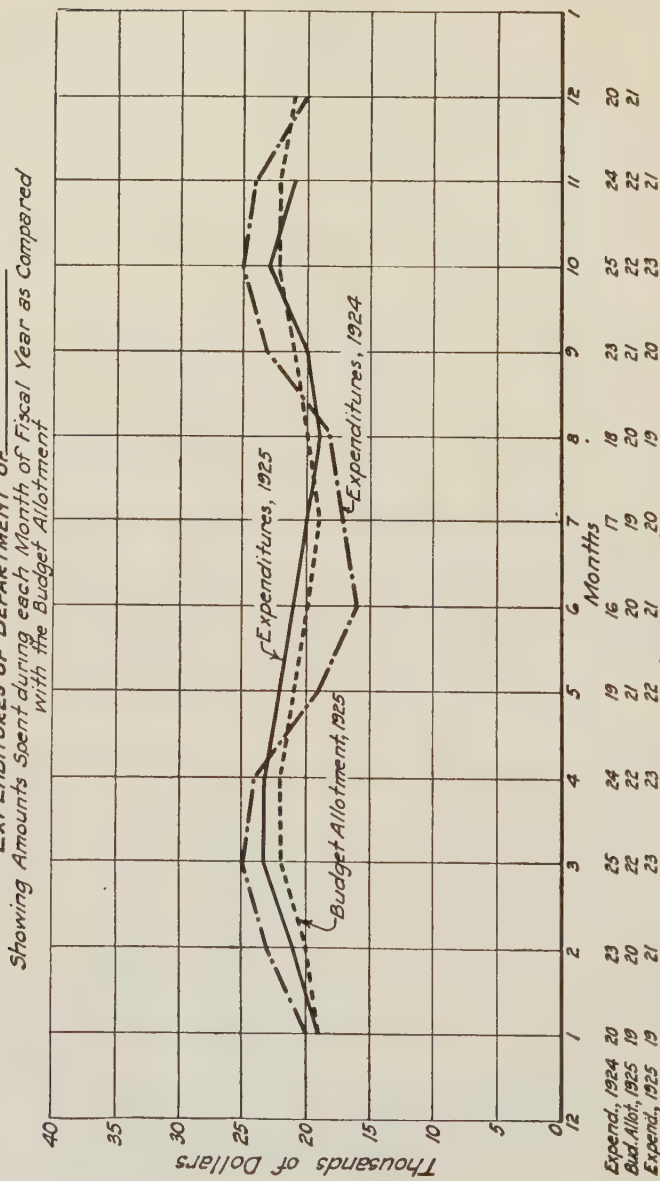

CITY OF
EXPENDITURES OF DEPARTMENT OF
Showing Amounts Spent during each Month of Fiscal Year as Compared with the Budget Allotment
Thousands of Dollars
40
35
30
25
20
15
10
5
0
Months
Expenditures, 1925
Budget Allotment, 1925
Expenditures, 1924
Expend., 1924 20 23 25 24 19 16 17 18 23 25 24 20
Bud. Allot., 1925 19 20 22 22 21 20 19 20 21 22 22 21
Expend., 1925 19 21 23 23 22 21 20 19 20 23 21
1 2 3 4 5 6 7 8 9 10 11 12
Thousands of Dollars

FIGURE 13. A Curve or Line Chart.

expenditures incurred against the fund, and the other pair the cumulative cash receipts and expenditures incurred against the same fund. The former lines are read by the scale on the left-hand side of the chart and the latter lines by the scale on the right-hand side. The lines representing the cash receipts of the fund start with a surplus of $100,000 at the beginning of the year. The lines representing expenditures incurred against the fund start with the demands for cash made during the first month. These lines or curves are a sort of biograph of the fund operations. The two curves representing the cumulative cash receipts and expenditures incurred are especially significant in that the width of the space between them indicates surplus in the fund. However, when the demands-for-cash curve goes above the cash-receipts curve a deficit is indicated in the fund, and transfers from other funds or short-time borrowing become necessary in order to meet further payments from the fund. This condition is shown on the chart during the latter part of the year, and the year closes with a deficit of $25,000 in this fund, although it began with a surplus of $100,000.

There are many ways of using curve charts to advantage in the comparison of unit cost data. Such charts may also be used in connection with purchasing to show the trend of prices of staple commodities or classes of goods, or to show the cost of important classes of goods distributed over the months when they were purchased. The relation of the debt burden to the other expenditures of the city government and to the city debt limit, where such a limit exists, may be shown on such charts. The plan of debt redemption, the annual retirement and interest charges, and the effect of new bond issues upon the existing debt burden may also be shown by curves. In fact, the curve chart has a wide application in financial administration, reporting and planning.

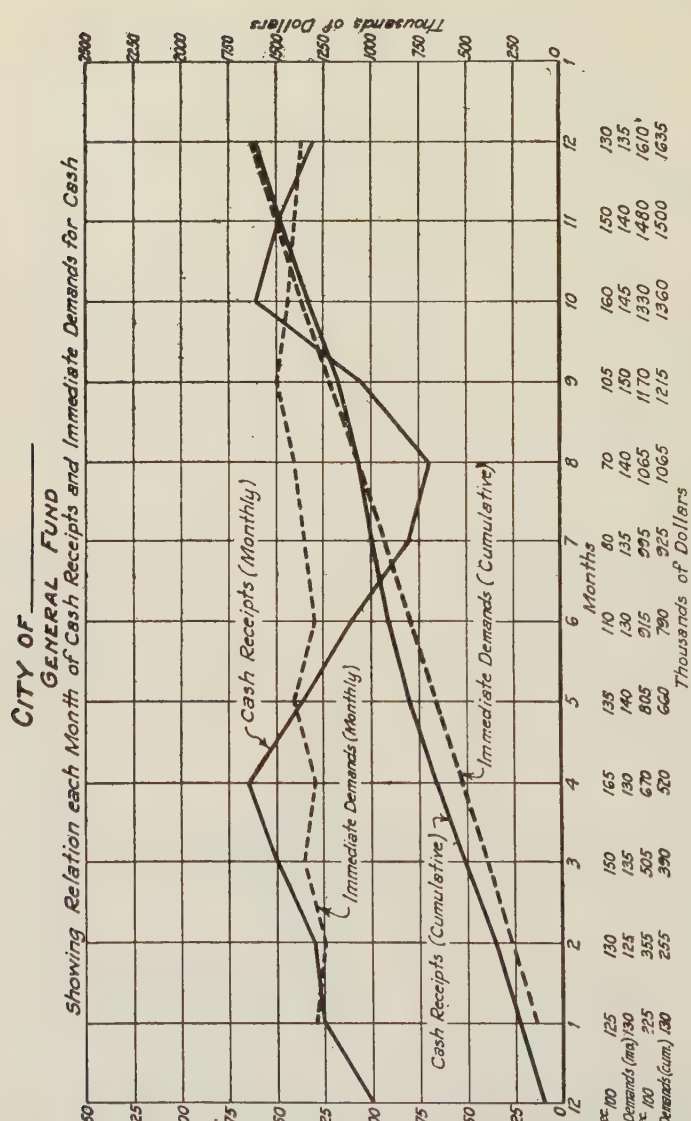

CITY OF_____
GENERAL FUND
Showing Relation each Month of Cash Receipts and Immediate Demands for Cash
Cash Receipts (Monthly)
Immediate Demands (Monthly)
Cash Receipts (Cumulative)
Immediate Demands (Cumulative)
Thousands of Dollars
Months
Thousands of Dollars
Cash Rec. (mo.) 100 125 130 150 165 135 110 80 70 105 150 160 130
Immed. Demands (mo.) 130 125 135 130 140 130 135 140 150 145 140 135
Cash Rec. (cum.) 100 225 355 505 670 805 915 995 1065 1170 1330 1480 1610
Immed. Demands (cum.) 130 255 390 520 660 790 925 1065 1215 1360 1500 1635

FIGURE 14. A Curve or Line Chart, Showing Totals Cumulatively.

Ratio or Logarithmic Charts

While the ratio or logarithmic chart is a line chart, it has some marked advantages over the ordinary line or curve chart in presenting certain kinds of data. In plotting the expenditures of a city government over a long period when the variation in the amounts at the beginning and at the end of the period is large, the graph can be shown better on the ratio chart. In fact, it is almost impossible to plot such a graph on an ordinary line chart with an arithmetic scale. The same is true in plotting the expenditures of different governmental units when there is a wide range in the amounts. This is illustrated by the accompanying chart (Figure 15), which shows the use of the logarithmic scale. It is apparent from an examination of this chart that a line curving upward at a uniform rate on a normal or arithmetic scale becomes a straight line on the logarithmic scale. This is due to the fact that on the latter scale equal vertical intervals represent equal ratios of increase instead of equal differences of increase. The ratio chart is, therefore, a medium for showing rate of change. In this regard, the position of the curve on the chart is without significance. The curve may be moved bodily up and down on the chart without altering the impression one may get of the curve fluctuations. This is due to the fact that a ratio chart has no base line; any value on a logarithmic scale is as much a base value as any other.

Trend lines may be fitted to the curves as has been done in Figure 15.[1] A comparison of these lines shows at once the slant of the different curves. Where the curves are more or less irregular the general slant may not be apparent without the trend lines. Each trend line

[1] This chart is taken from page 96 of the report of the Special Joint Committee on Taxation and Retrenchment of New York on *State Expenditures, Tax Burden and Wealth*, Legislative Document, No. 69, January 11, 1926.

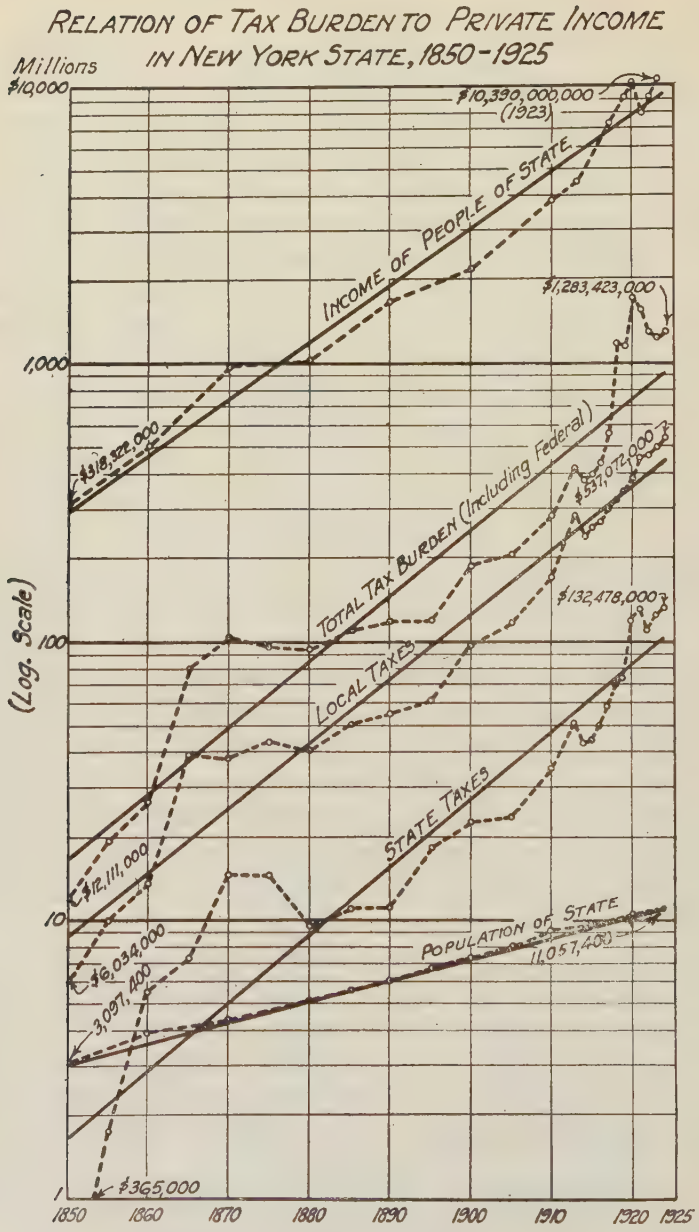


FIGURE 15. A Ratio or Logarithmic Chart.

is fitted to the curve according to a mathematical formula which takes into consideration the various points on the curve. This formula, however, is too complicated to introduce here. A simple and nonmathematical method of fitting a trend line to such a curve is by the use of a transparent ruler or draftsman's triangle. One edge of this instrument is placed over the curve and following its general direction so that approximately the same area appears between the straight edge and the curve on one side as on the other side. A line drawn along the straight edge at this point is the approximate trend line.

The logarithmic scale chart has no zero line as in the case of the arithmetic scale chart. The logarithmic scale usually starts with one; or it may start with ten, or any multiple of ten. Each deck or cycle of the chart, that is, each series of ten, is the same width and is spaced in exactly the same way. On Figure 15 the first deck starts with $1,000,000 and ends with $10,000,000; the second deck starts at $10,000,000 and ends with $100,000,000; this is repeated for the third deck and again for the fourth deck. In spacing each deck, the logarithms of the numbers from 1 to 10 are used.[1] A simple test to prove that the logarithmic scale is properly drawn is the application of doubles or trebles, since equal ratios have equal spaces in all cases. That is, the distance on the scale from 1 to 2 should be the same as that from 2 to 4, 3 to 6, 4 to 8, or 5 to 10; also the distance from 1 to 3 should be the same as that from 2 to 6, or 3 to 9.[2]

[1] These may be found in any table of logarithms. Carried to three decimal places they are as follows: 2, .301; 3, .477; 4, .602; 5, .699; 6, .778; 7, .845; 8, .903; 9, .954. The logarithm of one is zero and of ten is one.

[2] This may be tested out on the accompanying chart, Figure 15. Specially ruled paper, published for commercial purposes, may be used in preparing logarithmic charts. This saves the work of scaling off the decks. Of course, when the decks are made up they may be given any desired height and scaled accordingly. When the commercial logarithmic paper is used, certain heights must be followed since it is more or less standardized. In scaling the decks of a logarithmic field, the spacing may be taken directly from the scale of a slide rule and thus obviate the need of looking up the logarithms and applying them.

Area and Volume Diagrams

It will be noted that with bars and curves comparisons are made, in effect, by contrasting distances as measured along a straight line, or in one dimension.[1] Simple comparisons are made sometimes in two and three dimensions by contrasting areas and volumes, respectively. The cost of government in a city for two different years, for example, might be represented by circles or squares of proportionate areas, or by two coins of different sizes. Comparisons of this sort are sometimes made in popular articles by representing the quantities as money bags or volumes of proportionate sizes. The accompanying diagram (Figure 16) will make clear the different methods of portraying simple comparisons.

In each of these illustrations the figures are drawn in true proportion, but the conclusion is warranted that only in the case of lines or bars can the eye gauge accurately the exact ratio intended. In the case of the squares, the circles, and the cubes, the difference in size instead of being made clearer is minimized. When charts showing areas or volumes are used in public reports, the figures are frequently not drawn in true proportion and the result is a grossly erroneous representation.

Lines and bars must be drawn in absolute proportion. If the ratio is that of 1 to 2, one bar must be twice as long as the other. In the case of squares, if the ratio is to be as 1 to 2, the sides of the squares must be drawn in the proportion of 1 to the square root of 2, or of 1 to 1.414. This proportion has been maintained in the squares shown on Figure 16. If the circles are to show the same area as the squares, which they should do, then it is apparent that the diameters of the circles must be slightly longer than the sides of the squares. In other

[1] We may consider a bar as having one dimension, for its width and thickness are constants, necessary to give visibility to the line, and its length alone is significant.

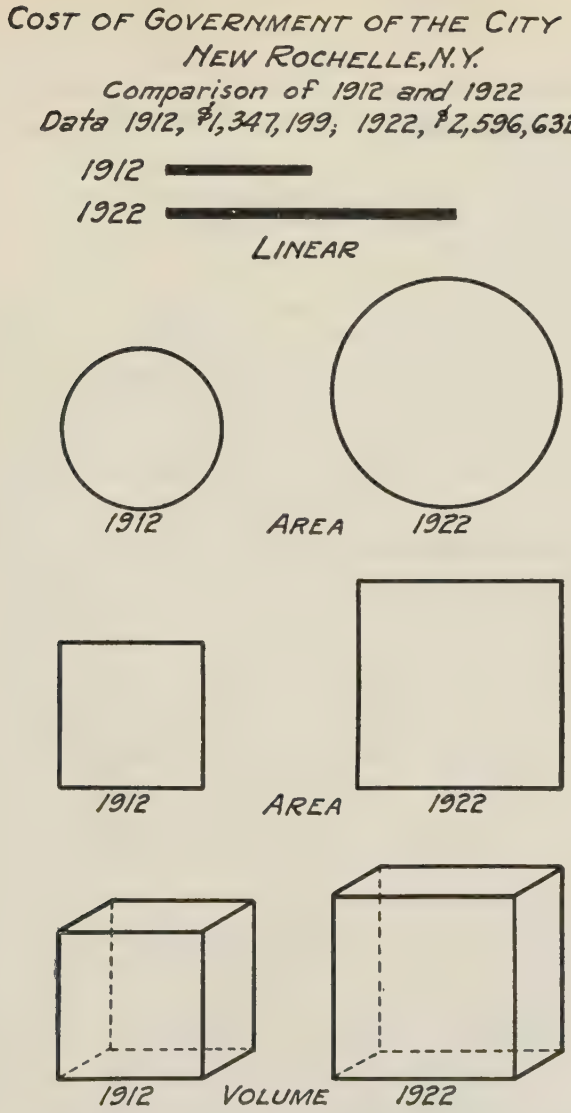


FIGURE 16. Comparisons by Line, Area and Volume.

words, the circles on Figure 16 have been drawn on an area basis rather than a diameter basis, the areas of these circles being the same as those of the corresponding

squares. If the circles are shown without reference to the squares, their diameters may be drawn in the proportion of 1 to the square root of 2, as in the case of the squares. In the case of the cubes, the ratio must be in the proportion of 1 to the cube root of 2, or of 1 to 1.26. This proportion has been maintained on Figure 16.

Circle or Pie Charts

Frequently in financial reports comparisons are made between the total expenditures of a city government and the expenditures of its various departments or major functions. Similar comparisons are also made between the total income of the city government and the different sources of income. The results of such analyses are often presented graphically in the form of the circle or pie chart, or the well-known "tax dollar" chart. For purely popular appeal few charts equal the circle or pie diagrams in their effectiveness.

The elements of popular appeal which the pie chart possesses should not obscure the fact, however, that it has serious limitations. These are such that it can be used only where the desire is to convey a very general idea of relative values. Even then, considerable care and caution are necessary to construct a pie chart which will have maximum interpretative value. The chart should be simple; there should not be too many slices or sectors. All divisions of the chart should be made along the radii of the circle; that is, areas should not be cut off by lines drawn in other directions so they have no direct connection with the center of the circle. If the labels are brief, they may be written in the sectors, otherwise they should be written outside the circle immediately adjacent to the proper sector. These labels should include the percentage figures for each sector. All labels should be written as nearly as possible in the same general direction on the chart.

Hundred Per Cent Bar Charts

Any data that can be presented on a circle or pie chart may also be presented on a hundred per cent bar chart. The actual amounts to be compared are expressed in distances on the percentage scale. The total amount then may be represented as a bar the length of which equals 100 per cent. The component parts are represented by divisions or segments of the bar proportionate in size to the percentage values of the several amounts. It is as if a separate bar were constructed for each component part and these were then placed end to end to form the total 100 per cent bar. Each component part should be indicated by distinctive marking. In such marking care should be taken to avoid optical illusions. A solid black segment will appear larger than a hollow segment of equal size when the two are next to each other in the bar. The labeling of the chart should be entirely outside the bar.

Organization and Procedure Charts

The organization chart and the procedure chart belong to the same general type. In fact, among chart makers they are known by a common name, that is, flow charts. This name is applied because their chief purpose is to show lines of authority, control, or direction.

The organization chart is a valuable medium for showing the sources of official authority and the lines of official responsibility in the organization of the city government as a whole or in any of its component parts, such as the departments or institutions. If properly constructed, such a chart will reveal clearly and unmistakably the overlapping of administrative offices, the illogical grouping of units, and any improper lines of supervision. Since these things have a direct bearing upon the operating cost of the city government, they become important from

the financial standpoint. Hence, the organization and relation of the various governmental units should be considered in financial planning and control, and organization charts of the city government as a whole and of the different departments should be inserted in the budget document and in the general reports.

In charting the organization of a city government two things are important—the collection of the necessary data, and the arrangement of this data upon the field of the chart. All legal provisions pertaining to the organization of each governmental unit and its relation to other units should be digested. These provisions are to be found in the city charter and city ordinances, and oftentimes in the general laws and even in the constitution of the state in which the city is located. The legal data may be condensed and set up in tabular form with the following columnar headings: (1) officers, boards and agencies, (2) how chosen, (3) term of office, (4) compensation, and (5) composition of boards. The legal data, of course, should be supplemented by administrative practice, wherever the latter affects the organization and duties of any agency.

The actual drafting of the organization chart involves the proper arrangement of the data on the field of the chart and the use of uniform symbols of representation. Although organization charts have been in general use for many years, no standard plan of charting, so far as the symbols are concerned, has been agreed upon. The flow of the chart, that is, the lines of authority and responsibility, are, however, generally accepted as extending from the top downward on the chart. In other words, the electorate and the legislative and executive agencies occupy the upper part of the chart, while the working units of the government occupy the lower part. The accompanying chart (Figure 17), showing the organization of the city government of Charleston, South Caro-

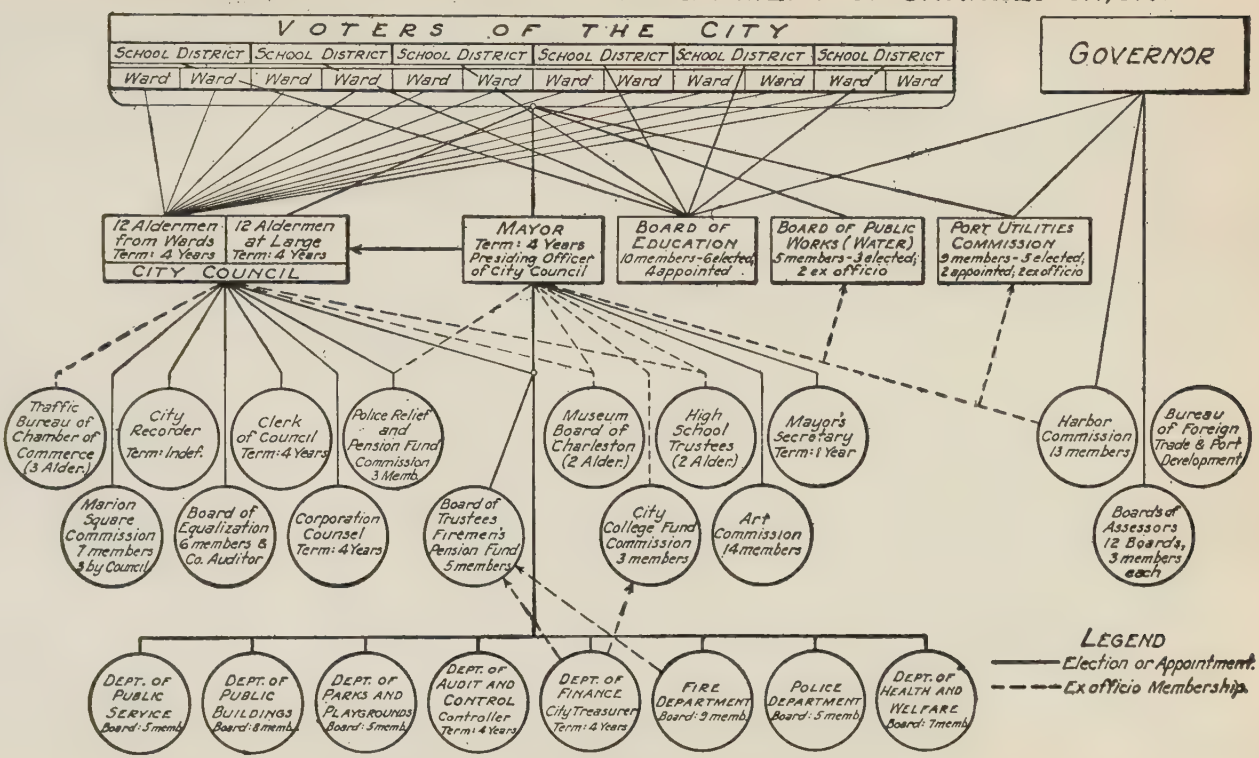

ORGANIZATION OF THE CITY GOVERNMENT OF CHARLESTON, S.C.
VOTERS OF THE CITY
SCHOOL DISTRICT
SCHOOL DISTRICT
SCHOOL DISTRICT
SCHOOL DISTRICT
SCHOOL DISTRICT
SCHOOL DISTRICT
Ward
Ward
Ward
Ward
Ward
Ward
Ward
Ward
Ward
Ward
Ward
Ward
GOVERNOR
12 Aldermen from Wards Term: 4 Years
12 Aldermen at Large Term: 4 Years
CITY COUNCIL
MAYOR Term: 4 Years Presiding Officer of City Council
BOARD OF EDUCATION 10 members - 6 elected; 4 appointed
BOARD OF PUBLIC WORKS (WATER) 5 members - 3 elected; 2 ex officio
PORT UTILITIES COMMISSION 9 members - 5 elected; 2 appointed; 2 ex officio
Traffic Bureau of Chamber of Commerce (3 Alder.)
City Recorder Term: Indef.
Clerk of Council Term: 4 Years
Police Relief and Pension Fund Commission 3 Memb.
Museum Board of Charleston (2 Alder.)
High School Trustees (2 Alder.)
Mayor's Secretary Term: 1 Year
Harbor Commission 13 members
Bureau of Foreign Trade & Port Development
Marion Square Commission 7 members 3 by Council
Board of Equalization 6 members & Co. Auditor
Corporation Counsel Term: 4 Years
Board of Trustees Firemen's Pension Fund 5 members
City College Fund Commission 3 members
Art Commission 14 members
Boards of Assessors 12 Boards, 3 members each
DEPT. OF PUBLIC SERVICE Board: 5 memb.
DEPT. OF PUBLIC BUILDINGS Board: 8 memb.
DEPT. OF PARKS AND PLAYGROUNDS Board: 5 memb.
DEPT. OF AUDIT AND CONTROL Controller Term: 4 Years
DEPT. OF FINANCE City Treasurer Term: 4 Years
FIRE DEPARTMENT Board: 9 memb.
POLICE DEPARTMENT Board: 5 memb.
DEPT. OF HEALTH AND WELFARE Board: 7 memb.
LEGEND
Election or Appointment.
Ex officio Membership.

FIGURE 17. An Organization Chart of a City Government.

lina, illustrates the general arrangement of an organization chart and the use of symbols. This chart presents a picture of a rather complex form of city government, and for that reason exhibits some of the difficulties of drafting this kind of a chart. It also brings out the idea that only a limited range of information may be shown upon such a chart without confusing the reader. This chart only attempts to show how the different agencies are established and constituted with the general lines of authority and control. It does not attempt to show how the various officials may be removed from office or the functional relationships of the different agencies.

The procedure chart is used to show working relations among agencies or the routing of a document or form through the hands of such agencies. Such a chart is sometimes called a planning or routing chart. Its purpose is to prevent confusion in following a given procedure and to show how all the agencies concerned are interrelated. The use of such charts has become more or less standard practice in the majority of commercial concerns. The chart presented in Chapter IX of this volume on purchasing procedure, illustrates the adaptability of such charts to the illumination of certain phases of financial procedure in municipalities.[1]

[1] See below, page 273.

CHAPTER VIII

EMPLOYMENT AND PENSIONS

The financial importance of employment in city governments is indicated by the fact that more than 50 per cent of the current expenditures of such governments goes for the payment of salaries and wages. The total number of municipal officers and employees in this country runs into hundreds of thousands and the aggregate annual compensations of these amount to hundreds of millions of dollars. The exact number and amount we do not know. Recent reports show that in New York City alone, the total number of employees is over 116,000 with yearly salaries and wages aggregating over $224,000,000,—more than $600,000 a day. Practically every profession, trade, or vocation is represented among the employees of this great city. The latest advancement in science and invention is quickly reflected in the city's roster of employees. For example, there are alienists, bacteriologists, broadcasting supervisors, dental hygienists, dietitians, pathologists, psychiatrists, radio operators, roentgenologists, stenotypists, tabulating machine operators, and typewriting accountants. This enumeration in itself indicates the rapidly increasing scope of city functions, which already covers a wide range of human activities. Undoubtedly, we may expect, at least for some time, that more and more employees will be added to the already imposing force of municipal workers. The proper financial supervision of city employment and adequate control over disbursements for personal services are, therefore, matters of extreme importance in municipal administration.

An attempt is made to outline in this chapter some of the more important features of employment and pension supervision as they relate particularly to municipal finance. Perhaps it would be more exact to say that the discussion is limited to those features which have a more or less direct bearing on financial administration. The general treatment of the subject matter should not, therefore, be regarded as being in any sense either exhaustive or final. In fact, many books have been written on the various phases of employment management and pension administration. Recently there has even grown up the profession of employment or personnel management. And withal there are many problems in connection with municipal employment that are still unsolved and are likely to remain so for some time to come.

What are the features of municipal employment that relate especially to the general financial administration of the city government? They are: (1) the employment agency and the extent of its supervision, (2) the classification of employees, (3) the standardization of salaries, (4) the selection of employees, and (5) the conditions of employment. These are briefly discussed below in the order named. Finally, there is a brief discussion of pensions for municipal employees.

The Employment Agency and the Extent of Its Supervision

When public employment supervision was inaugurated several years ago under the civil service, its main purpose was to put an end to the "spoils system." Under this system government positions were used by the administration to reward the "faithful" for help in the political campaign. As a consequence, when the administration changed hands, most of the old employees were turned out and new ones came in. A person's qualifications for a particular position were measured not by his ability to

perform the work, but by his zeal in the political campaign. In order to uproot such a system, the civil service was organized as nearly as possible on an independent basis. It was placed under a commission, usually bipartisan in character and so constituted and appointed as to be largely, if not entirely, free from control by the elective administrative officers of the city. This commission was given power, subject to certain general limitations, to establish rules and regulations governing the recruiting, promotion and removal of city employees. The rank and file of the city's workers were, therefore, under the supervision of this independent commission and were protected in tenure of position by its authority.

There is no doubt that the application of civil service methods has greatly improved the general character of municipal employees. But the administration of these methods seemingly has not kept pace with other developments in city government. Recently, the city manager form of government appears to have come into conflict at certain points with what are regarded in some quarters as the basic principles of civil service. The idea of definite administrative responsibility upon which the manager plan is built implies that the manager must exercise undisputed control over his subordinates down to the lowest man whenever it becomes necessary. In other words, there must be no break or shunt in the direct line of authority between the chief administrative officer and the different individuals who compose the body of municipal workers. Some city managers have criticised the civil service because it does not take these things into account; because it still continues to apply the methods formerly used to defeat the spoilsmen. It seems to overlook the fact that the manager has no political debts to pay and that the tenure of his position depends upon what he accomplishes, which in turn depends upon the

support he gets from his subordinates all the way down the line.

Civil service supporters are beginning to realize the shortcomings of the existing methods. Many of them now recognize that supervision of public employment is a function of the general administration and should not be isolated by placing it under an independent or semi-independent commission. Like purchasing, accounting, and budget making, it lends itself readily to centralized direction and uniform treatment. This is the opinion of those who do not fear the spoilsman and who believe that political patronage is no longer the main thing to be guarded against in establishing employment supervision.[1]

The recent manager charter of Kansas City places the management and control of personnel under a director appointed by the manager and serving at his pleasure. This director is the head of the department of personnel which is coördinate with the other departments of the city administration. This arrangement marks a distinct departure in municipal employment control. It dispenses with the commission as an administering agency and makes the work a part of the general administration of the city government. A further step may be taken, as has already been done in some of the states, by associating the supervision of employment more closely with the other financial functions of the city government, that is, by making it a division under the department of finance. Such arrangement would have an advantage, especially in the smaller cities, over the independent department of employment or personnel. This latter plan of organization would seem to be especially well adapted for use by cities where state supervision over municipal employment has been developed, as in Massachusetts and New Jersey.

[1] See Conference Committee Report, "The Personnel Problem in Public Service," *Public Personnel Studies*, January, 1926.

It should be borne in mind that direct control of the employment agency by the administration is designed to work successfully only in those governments where executive responsibility is centralized, as in the manager form of city government. In those cities where the administration is decentralized and depends in its operation upon the old check and balance devices, there is little doubt that the civil service commission is more appropriate as an agency to administer the employment work of the city government. Such cities are likely to have the spoils system in some degree, and this condition can be dealt with more effectively through an independent commission.

Classification of Employees

Under civil service regulations, all public offices and positions are classified and examinations are held to select qualified applicants for those to be filled by competition. This is known as the merit system. Wherever this system is applied to city governments, the offices and positions are divided into two major groups—the unclassified service and the classified service. The unclassified service includes all offices filled by election or by the city council, and other specified positions. The classified service includes all other positions and comes within the jurisdiction of the employment agency. It is usually separated into three divisions: the competitive, the noncompetitive, and the exempt. Positions under the competitive division are filled by examinations or by promotions or transfers. The noncompetitive division includes employees whose peculiar or exceptional qualifications make it impracticable to place them in the competitive division and who are selected by suitable noncompetitive tests. The exempt division comprises the principal officers and deputies and the skilled and unskilled laborers not included in the other divisions.

The above classification is sometimes known as the jurisdictional classification because it enables the employment agency to know the limits of its authority. There is, however, another and more important classification which is based upon an analysis of the duties of the various positions. This classification is regarded as a prerequisite to an intelligent understanding of the problems involved in public employment supervision. It is a comparatively recent development, being first worked out for the city of Chicago in 1911. At the present time there are two general types of this classification, the Chicago type and the New York type, so called because of their origins. The Chicago type outlines certain broad divisions in the city service; while the New York type follows principally vocational lines. The recent trend in the application of these types of classification seems to favor the New York type.

The New York classification divides all positions in the city government into certain grand divisions called "services." These are as follows: executive, legislative, judicial, professional, subprofessional, investigational, educational, clerical, inspectional, custodial, institutional, police, fire, street cleaning, skilled trades, and unskilled. The services are subdivided into "groups," so as to distinguish the work or duties generally performed in the same profession, trade, or vocation. Each group presents a somewhat special problem from the employment standpoint. It is designed upon the basis of the functions or the kinds of work performed regardless of organizational lines. Employees who perform the same kind of work are classified in the same group or vocation irrespective of the department in which they are employed. In other words, the city government is considered as a single employer who treats on an equal basis all of its employees performing the same kind of work. Finally, the groups are subdivided into "grades" in or-

der to distinguish the specific quality of work or duties to be performed by the individual officers or employees and to determine what the appropriate salary range should be. The distinctions between grades are based entirely upon discernible differences in the importance, difficulty, responsibility and value of the work. Grades are in each instance defined in detailed specifications which set forth: (1) title of position, (2) duties, expressed in general terms, and their relative importance as compared with the duties described in other grades, (3) qualifications—the minimum for entrance and promotion, (4) principal lines of promotion, also special conditions governing advancement, and (5) compensation, including special regulations governing salaries. The titles in the specifications are for the purpose of designating the range within the grade of the positions in the city service. They are descriptive of the duties performed, such general and unqualified words as "expert" or "agent" not being used. Hence employees designated by the same titles are understood to perform similar or closely related work within a definite grade. The titles are also evidence that all employees having the same designation should receive compensation on substantially an equal basis. Such designations are, therefore, valuable for purposes of payroll audit.

The position is the essential element in the type of classification described above. It is with the idea of defining each position and assigning to it the proper title designation that such a classification is undertaken. The value of this from the budget making and accounting standpoint can be easily seen. It eliminates superfluous and misleading titles. Examples may be cited from studies made in various cities which show a single position appearing under fifteen or twenty different titles on the payroll. Probably not more than one of such titles gives a correct idea of the duties of such a position, and

hence of the compensation that should be paid to the incumbent. The classification of positions thus gives a practical working basis for arriving at the appropriation requirements for personal services.

Standardization of Salaries

The standardization of salaries is made possible by the proper classification of positions. Such standardization is based upon a determination of the positions in the service which involve equal work and should therefore carry with them equal pay. In many cities the salaries of employees bear little relation to the amount of work they do; there is no correlation between work and pay. The budget making authorities have fixed artificial salary schedules which are not related to the work done. The result is that these cities are paying too much for some work and too little for other work. This is poor business from the standpoint of the city government and usually leads to dissatisfaction on the part of the employees.

Several factors need to be considered in the standardization of salaries for city employees. These include the following: the prevailing wage for similar work in private employment, the present cost of living, the range of salary from a minimum to a maximum, the qualifications required for the work in terms of education and experience, the hazards of the work, and provisions for a retirement system. Some of these factors relate to financial administration and are discussed briefly at this point.

A study of the salaries and wages paid for similar kinds of work by the various corporations and business concerns within the city or in other cities with like conditions should furnish figures of considerable value in determining the scale of salaries and wages that the city ought to establish. To a large extent the city government

may be regarded as being in competition with local private concerns in securing and holding its employees. It must, therefore, pay salaries and wages which are equally as good, if not somewhat higher than the prevailing rate. Of course, the city government has some advantage over business concerns when it offers permanence of service and the prospect of regular increases in pay.

In order to keep up with changing economic conditions, the city government which has established rates of pay must revise these from time to time. This can be done most effectively through a study of living costs. Cost-of-living budgets may be worked out for single adult employees and also for employees with families and the minimum rates of pay for the lower positions in the city service established with these facts in mind. This method of approaching the problem has been used recently in several cities.[1]

It is generally agreed that even if it were possible to determine exactly the value of a particular position, it would nevertheless be preferable to establish a range of salary with a minimum compensation somewhat below and a maximum somewhat above the exact value. Usually an employee enters a position with very little experience and by application over a period of time his usefulness increases. Advancement within the range of salary offers an incentive to continued improvement and better

[1] A method, unique to this country, of adjusting standard salary rates to the fluctuating cost of living has been adopted in St. Paul, Minnesota. The basic entrance salaries, which are the compensations deemed adequate for living conditions such as prevailed in 1916, are adjusted on July 1 of each year according to latest available index on the cost of living for the United States as prepared by the Bureau of Labor Statistics. The index number for 1916, which is taken as 112, is subtracted from the latest index number available on June 1 of the current year. The actual percentage of increase so determined constitutes the adjusting percentage applicable to the standard rates. This adjusting percentage was 52 per cent for the year ending June 30, 1925. The full percentage increase, however, is only allowed to the lower paid employees, it being assumed that the higher paid are not affected so seriously by the rise in the cost of living. See pamphlet entitled "Standardizing Salaries," prepared by J. B. Probst, chief examiner, civil service bureau, St. Paul, June, 1922, for a complete exposition of the method.

work. Besides, it is not fair for an employee to come into a position upon the same salary basis with another employee who has filled it successfully for some time. Usually, a minimum rate and a maximum rate are fixed for a position with from one to three intermediate rates. This constitutes what is known as the salary range.

The standardization of salaries facilitates the work of the budget making authority. Without such a standardization, there is little to guide it in arriving at the estimates of the cost of personal services. On the basis of standard schedules of compensation, estimates may be quickly and intelligently formulated and appropriations for personal services may be made in lump sums with the assurance of adequate accounting control. In order to simplify the payroll procedure, the various rates in the salary range of a position are usually fixed at exact multiples of twelve. For example, the position of clerk would be assigned salary rates as follows: $1,320, $1,440, $1,560, $1,680 and $1,800. This is rather difficult to accomplish in the case of wages computed on an hourly basis. However, it has been found of assistance in budgeting expenditures for day labor to adopt a system of annual rates divisible by 313 days and 8 hours a day.

Selection of Employees

The selection of employees has been and remains the important function of the civil service commission. While the classification of positions and the standardization of salaries have very often been performed by temporary or outside agencies, the civil service commission has reserved to itself the right of devising tests, of giving examinations, and of certifying to the appointing authorities a list of eligibles. The regular procedure is to hold tests of a character that will determine the qualifications, fitness, and ability of competitors for the positions to which they seek appointment. The examining agency

is usually free to make investigations of the applicants' education and experience and to test their ability, skill, and fitness in any way it chooses. Ordinarily, public notices are required at least two weeks before tests are held, so that the best type of persons available will be attracted to take the tests. Even so, competition in many cities is very limited. After the tests have been given, the competitors are rated and an employment list is prepared for each position in which the names of those qualified to fill the position are arranged in the order of excellence. The appointing authority is usually restricted to a choice between the three names at the top of the list of eligibles. This is thought by some to curtail unduly the appointing authority in his selection. Something may be said at the present time in favor of allowing appointments to be made from any names on the eligible list.

Another matter is beginning to receive attention in qualifying persons for appointment in the city government; that is, age. There are numerous instances where city authorities have appointed employees who were past sixty years old. Such employees are on the verge of becoming pensioners when appointed; they have only a short period of service at best. It is certainly not good business for the city to place such individuals on its payroll.

Conditions of Employment

Civil service advocates generally agree that employees entering the public service should be on probation for a short period. During this period they may be dismissed by the appointing authority if they show that they are not going to make good at the work, although they may have indicated they were competent according to the tests applied.

Both advancement and promotion in the municipal

service are dependent upon some evaluation of the employee's work. Service (efficiency) standards and ratings have been devised for this purpose. A typical example of such standards and ratings are those applied in New York City. They are used three times annually, on January 1, May 1 and September 1, in rating all individuals in the competitive service, except the uniformed police and fire forces. Each employee in a department is placed by the reporting officer of that department in one of four groups; the report is then filed with the municipal civil service commission which gives the employee a service rating on the basis of his record. The first group is termed "most efficient," and an employee is placed in it when he has completed service of unusual advantage during the record period. The second group is deemed "more efficient" and includes those employees who have improved in their work during the record period. The third group is called "efficient," those employees whose service status has not changed during the record period being placed in it. The fourth group is designated as "inefficient" and consists of those employees who have been guilty of some positive act of misconduct, or who have been disciplined by the department because of lateness or absence. At the time of an employee's appointment his rating is fixed at 75 per cent. This rating may be increased or decreased by the civil service commission on the basis of the employee's service record. If the employee is classed in either the second or third groups, the commission may give him an increment of 1 or 2 per cent each year until he has reached 90 per cent. If the employee is in the first group, he may get an increment of as much as 10 per cent in a year. When an employee is classed in the fourth group, he may be denied any increment, or if he is guilty of misconduct, an extra percentage may be deducted from his service rating. No increment is allowed for less than 150

days' service during a year. The application of such a system falls largely upon the various departments of the administration, which must work in harmony with the employment agency if the system is to be successfully carried out. Service ratings, when properly prepared, are valuable not only in determining advancements and promotions, but in bringing about transfers, demotions, retirements and removals.

In the matter of suspensions and removals from the public service there is wide difference of opinion. It is upon this point that existing civil service methods are most severely criticised. Through legal provisions and general regulations it is usually made extremely difficult for the responsible executive officer to control employees or to remove incompetents from the service. Many who have studied the situation feel that there should be no restrictions upon the chief administrative officer in removing any employee under his control whom he deems unfit for the service. In other words, provisions should be made for an open back door to the city service. The power of removal is not likely to be abused so long as a record is made of the action taken in the case of each employee. The interests of the employees are protected so long as they each continue to perform satisfactory service. The city government and the taxpayers are protected by the expeditious removal of all obstreperous and incompetent employees.

Certain working regulations are important from the financial standpoint. These relate especially to working hours, vacations and sick leave, and political activity. Standard working hours should be established for the different services. Employees in offices are usually required to put in eight hours a day, beginning at eight and quitting at four, or beginning at nine and quitting at five, with thirty minutes to an hour off at noon.

An annual vacation leave of two weeks with full pay

is commonly granted to employees who have been in the city service for at least a year. There is, however, no uniformity among the various cities in the granting of sick leave. In fact, in some cities there is considerable abuse in the use of such leave. In one large city in the middle west it was found by actual observation that 13,183 days, attributable to sickness, were lost during a single year in the different administrative departments. This meant a loss to the city government of from $50,000 to $100,000 during that year. In view of such facts, it has been suggested that a uniform sick leave of two weeks be granted to all employees who have been on the city's payroll for a period of six months and that the department head be permitted to extend this period in exceptional cases. A report from the sick employee should be at once filed with the employment agency. In case the employee is absent for more than three days, a statement with a physician's certificate should be filed with the department head and also with the employment agency.

A service record of all employees in the classified service of the city should be kept by the employment agency. This record should show for each employee the title of position held, the salary or wage paid, the date of appointment and every subsequent change in status, the service ratings—if any, the organization unit in which the individual is employed, and the name of the employee's immediate superior. The employment agency should use this record in the certification of payrolls.[1]

Pensions for Municipal Employees

Public employment methods are largely based upon the idea of securing efficient employees in the government and of retaining them as long as they perform satisfactory service. Sooner or later these employees

[1] See above, pages 136 ff.

become incapacitated for further service on account of disease, accident, or old age. At this point city authorities must choose between dismissing such employees from the service or continuing them as long as they are able to report for duty. Dismissal on account of physical or mental incapacity after years of service is not fair to the employee or to those dependent upon him for support; and it is not to the best interest of the city government to continue an employee in this condition on the payroll. The most humane and satisfactory means of meeting this situation seems to be found in the establishment of a pension system.

Many cities have provided pension funds for the retirement of certain groups of employees, such as, policemen, firemen, and teachers. A few cities, notably New York, Boston, Chicago, Milwaukee, and San Francisco, have recently established pension systems applying to all municipal employees who do not belong to the special groups. The New York City system makes membership compulsory for all new entrants in the service and optional for employees at the time of the establishment of the system. Under the San Francisco system membership is compulsory for both classes of employees. Employees, included under the pension system, are usually grouped in classes according to occupation. Under the New York City system there are three main classes, namely, (1) laborers and unskilled manual workers, (2) mechanics and skilled workers whose duties require mainly physical effort, and (3) administrative, professional, technical, and clerical workers. These classes are in addition to those covered by the special pension funds. Retirement is optional for the first class at the age of 58, for the second class at 59, and for the third class at 60, it being compulsory for all at 70.[1] The Boston sys-

[1] An attempt was made late in 1925 to change the minimum ages for retirement to 53, 54 and 55 years through an ordinance passed by the local legis-

tem permits the retirement of employees at the age of 60, making retirement compulsory at the age of 70. The New York and Boston requirements for retirement illustrate what is considered to be sound practice in this regard. Age, rather than length of service, is made the basis of retirement. A minimum age is fixed after which retirement is permissible and a maximum age after which it is compulsory. The margin between the minimum and maximum ages is sufficient to allow for variations in the time when individual employees may become superannuated.

Other features—largely fiscal in character—which are essential to the establishment of a municipal pension system are: (1) a sound financial basis, (2) proper allowance of benefits, and (3) administration of the system. These are briefly considered below in the order just named.

Sound Financial Basis

There are two general methods of providing pension funds; one is the noncontributory system, and the other is the contributory system. Under the noncontributory system the entire cost of the pensions is borne by the city government. City authorities sometimes prefer this method since they can then exercise complete control over the retirements. Employees generally are willing to let the city provide the pension funds without any contributions on their part. They do not realize that they are usually contributing in the form of depressed salaries and wages.

Under the contributory system the cost of the retirements is either borne entirely by the employees or divided

lative body under the powers granted to the city government by the home rule amendment. This ordinance was attacked in the state courts mainly on the ground that it attempted to cover into the pension system certain officials and employees of the retiring city administration who were under the minimum age limit. The courts sustained the objection, so the age limits stand as originally provided.

between the city government and the employees. The division of the cost between the city government and the employees is known as the joint contributory system; and it is the system most generally adopted in this country. It looks toward an equal division between the employees and the city government of the cost of the benefits on account of services rendered after the pension system has been established. Liabilities arising out of services rendered prior to the establishment of the pension system and the cost of benefits on account of injuries sustained or death occasioned in the performance of duty are usually borne entirely by the city government. Essentially these provisions have been incorporated in the pension systems of New York City and San Francisco. The Chicago pension system, however, provides a normal contribution by the city government of from 1½ to 3 times larger than that of the employees.[1]

Under the joint contributory system the employees are required either to make contributions at a uniform rate, or at graduated rates according to entrance ages. Contributions under the uniform rate usually vary from 4 to 5 per cent of the employee's salary. The city government may contribute an equal amount, or it may contribute considerably more. Contributions according to graduated rates range from about 3 to 7 per cent of the employee's salary. The object of the graduated rates is to accumulate at a certain age a reserve sufficient to pay a retirement allowance of a certain proportion of the employee's salary. This involves the determination of

[1] It should be explained that the *normal* contribution from the city government goes toward setting up the necessary reserves on account of services rendered subsequent to the establishment of the pension system. Reserves on account of services rendered prior to the establishment of the pension system are usually set up by what is known as the *deficiency* or *accumulated liability* contribution made by the city government. Starting with the beginning of the pension system, the deficiency contribution is usually made annually over a period of years, ranging from 20 to 50. This contribution ceases when the assets accumulated therefrom are equal to the prior service liabilities.

what reserves are necessary at different ages of retirement to make possible the payment of an annuity of a given amount to each retired employee during the remainder of his or her life. In computing annuities either standard mortality tables or specially prepared ones may be used. As soon as the retirement allowance has been fixed, its obligations upon a reserve basis should be computed and the yearly contributions necessary to accumulate the reserve to meet them. Unless the assets accruing from the contributions and the interest earned upon their investment are equal to the prospective liabilities, the pension fund is not solvent. Several breakdowns in existing pension systems have resulted largely because the proper authorities failed to provide adequate reserves. An example is the New York City teachers' retirement fund which became bankrupt in 1916 and had to be completely reorganized.

Allowance of Benefits

Benefits are usually allowed in the following contingencies: old age (superannuation), disability (ordinary and in the performance of duty), death (ordinary and in the performance of duty), and withdrawal from the service through resignation or dismissal. The retirement allowance generally represents two distinct benefits: the *annuity* provided by the employee's accumulated contributions, and the *pension* provided by the accumulated contributions of the city government.

The New York City pension system is considered as providing equitably for the various contingencies noted above. It fixes the retirement allowance as follows: an annuity of such amount as the accumulated contributions will provide, which in the average case is the same amount as the pension; a pension of 1/140 of salary for clerks, 1/136 for mechanics, and 1/132 for laborers for each year of service subsequent to the adoption of the

pension system, and 1/70, 1/68, and 1/66 of salary for the three groups respectively for each year of service prior to the adoption of the system. Hence an allowance of approximately half pay is obtained after 35, 34 and 33 years of service in the respective groups. Various optional benefits are allowed upon retirement. The allowance for ordinary disability is granted after ten years of service, as follows: in addition to the annuity of such amount as the employee's contributions will provide at the time of retirement, a pension is added which will bring the total allowance up to 90 per cent of the 1/70, 1/68 and 1/66 fractions; if the allowance so produced is less than 25 per cent of the salary then additional salary fractions are provided for each year which separates the employee from his regular retirement, not to exceed, however, 25 per cent of the salary. Allowances for disability in performance of duty are granted any time and include in addition to the annuity a pension of three-fourths of the final salary. Provision is made for the reexamination and restoration to service of retired employees whose disability has ceased. In the case of ordinary death the accumulated contributions of the employee are returned to the beneficiaries of the deceased and in addition a lump-sum benefit of one half year's salary is added. In case of death in performance of duty a pension of one-half salary is paid to the dependents in addition to the accumulated contributions of the deceased. The employee who resigns or is dismissed before retirement receives his or her accumulated contributions. The pensions, annuities or retirement allowances are paid in equal monthly installments.

Administration of the System

Municipal pension systems are generally under the control of boards. In some cases these boards are constituted entirely of city officials, while in others they con-

sist of city officials and representatives of the employees. The New York City pension system is managed by the board of estimate and apportionment, and hence is of the former type. An example of the latter type is the Boston retirement board, which is composed of the city treasurer, a member appointed by the mayor, and a third member representing the employees appointed by these two members. Pension advocates prefer the latter type of agency. They argue that it is proper for the employees who contribute to the pension system to have a voice in its administration. The actual administration of the Boston system is under the direction of an executive officer employed by the retirement board.

Both the New York City and the Boston pension systems provide for a medical board of three physicians to assist the board of estimate and apportionment or the retirement board in passing upon disability cases. This board also makes examinations from time to time of employees who are on disability allowances and determines when such employees have sufficiently recovered to be reinstated in the city service or to engage in some other gainful work.

The establishment of certain pension funds and the proper investment of these funds is important if the pension system is to be maintained in a sound condition. Under the Boston system three pension funds are established: the annuity savings fund, the pension accumulation fund, and the retirement reserve fund. The contributions on the part of employees are placed in the first fund and the contributions by the city government are placed in the second fund. When an employee is retired, either from disability or superannuation, his share of these two funds is transferred to the third fund and from this fund he receives his pension. If an employee leaves the service, except by retirement, he receives from the annuity savings fund whatever has accumulated from

his contributions. An employee who is entitled to payments on account of service rendered prior to the establishment of the pension system may be paid out of the pension accumulation fund. The New York City system has five pension funds, namely, the annuity savings fund, the annuity reserve fund, the pension fund, the pension reserve fund, and the contingent fund. While the funds are split up somewhat more than under the Boston system, the same ends are served. It is important, if all pension funds are to be maintained in a sound financial condition, that an actuarial investigation be made periodically into the mortality, service and compensation experience of the members and beneficiaries of the system; and also a valuation of the assets and liabilities of the pension funds taking into account the results of the investigation.[1]

In both New York City and Boston, the city's contributions to the pension funds are made annually by direct appropriations. In addition, the city government appropriates for the cost of administering the pension system. In Boston the pension funds are kept in the custody of the city treasurer and are invested by the retirement board in such securities as the sinking funds of the city may be invested in. In New York City the pension funds are placed in the custody of the city comptroller and are invested by him under the direction of the board of estimate and apportionment. The investment of these funds is subject to the conditions and restrictions imposed by state law upon investments made by savings banks. Not to exceed 10 per cent of the pension funds may be kept available as a drawing account to meet the current disbursements. The whole pension system is under the supervision of the state department of insurance.

[1] Such investigation and valuation are made every five years under the Boston pension system.

CHAPTER IX

PURCHASING

City governments spend millions of dollars annually for various kinds of goods. The amount so spent is approximately 30 per cent of the total current operating budgets of such governments. However, it is not so much the volume as the variety of purchases, including all kinds of supplies, materials, and equipment, that calls for skill, training and experience in handling the purchasing work. Aside from this, if the purchasing work is not properly organized there are unlimited opportunities for waste, and even for graft, in buying for city governments.

Purchasing goods has been regarded for more than two decades as an important part of the financial administration of city governments. Only since 1910, however, has much attention been given to the development of an effective system of government purchasing. This was brought about to a large extent in city governments by reorganization, through which the various functions were integrated in a few departments and general fiscal control established under one of these departments.[1] Centralized supervision over the purchase of all goods for municipal use was the natural outcome of this type of organization. Such supervision was established under the control of a single department or office of the city government. In working out a system for centralized purchasing, city authorities turned for guidance to private concerns which were already successfully using the

[1] See above, pages 8 ff.

centralized system of buying. The purchasing procedure of these concerns was adopted by the cities after changing it in numerous details in order to suit governmental needs.

As soon as centralized purchasing was given a fair trial by city governments, its superiority over the arrangement under which the various departments and institutions had individually bought their own goods was evident. It was found to have certain distinct advantages. Lower prices on goods were obtainable by consolidating the needs of the various departments of the city government. This stimulated competitive bidding and enabled the city to buy at wholesale prices. It was also possible to standardize goods, thus eliminating a wide range in grades. This resulted in the purchase of goods better adapted to municipal requirements. Goods could also be bought when market conditions were most favorable; a year's supply might be bought at one time. Indirectly, centralized purchasing promoted the prompt delivery of goods, the immediate payment of vendors' bills, and better inspection of goods purchased. Under such a system complete records of all purchasing transactions could be maintained and more effective accounting control could be established over goods in storage. Surplus goods could be transferred from one department to another and obsolete or used goods salvaged. Finally, it was evident that a centralized purchasing system might be adopted with advantage by either a large or a small city; the size of the city did not limit the usefulness of the system.

Centralized purchasing has spread so rapidly among city governments during the past few years that almost one-fourth of the 770 cities with a population of ten thousand or more have already established a more or less complete system. Of the cities with the manager form of government more than 80 per cent have adopted the

centralized purchasing system.[1] Cities usually include under the system the purchase of all supplies, materials, and equipment—in some cases, contractual services—for all agencies of the government, except the educational agencies. This exception is largely due to the fact that educational work in most city governments is organized independently of the remainder of the city administration.[2]

Where centralized purchasing has been tried out in the different city governments, it has worked successfully. Of course, its success, as one might expect, has been more marked in some city governments than in others, depending upon the organization, administrative ability, and local conditions. Economies have resulted from the operation of centralized purchasing, amounting to from 5 to 15 per cent of the total cost of the purchases. The cost of operating the centralized purchasing agency has varied usually from 1 to 2 per cent of the aggregate cost of purchases. This is considered among commercial concerns as a low operating cost for the purchasing agency. As a system, centralized purchasing has already fully demonstrated its usefulness in city governments from the financial standpoint.

Organization of Agency for Centralized Purchasing

Perhaps the most effective type of organization for the centralized purchasing agency is the purchasing bureau or division under the department of finance. This bureau or division is under the direction of the purchasing agent, who is appointed by the head of the department.[3] Cities, especially those with the manager form of government, seem generally to favor this type of organization. It has

[1] See Russell Forbes, "Centralized Purchasing in Governments of the United States and Canada," *The Annals of the American Academy of Political and Social Science*, May, 1924, pp. 272 ff.

[2] See above, pages 27 ff.

[3] See above, pages 19, 24.

the advantage that comes from associating the purchasing work directly with the other financial work of the city government.

There are, of course, other types of organization for centralized purchasing work. The most common of these is the purchasing department, which is more or less independent of the other departments and agencies of the city government. This department is usually under the immediate direction of the purchasing agent. He may be responsible directly to the mayor or the manager, or even to the city council; or he may be under a board which is nominally, if not actually, head of the department. The independent purchasing department is suitable to those city governments whose activities have not been integrated and properly departmentalized. Such a department seems to operate most successfully where the purchasing agent is head of it and directly responsible to the chief administrative officer of the city government.

A vital thing in the organization of the city's purchasing work is the selection of the purchasing agent. He should have certain qualifications as to training and experience. He should be able to interview salesmen and to negotiate favorable price agreements. He should be well acquainted with the sources of supply of goods used by the city government and should keep constantly informed on the trend of the markets. In the larger cities, the purchasing agent should have an assistant who is qualified to look after the routine purchasing work. The size of the clerical staff required should, of course, depend upon the volume of the purchasing work.

The organization of a stores division under the purchasing department or bureau is quite common among commercial concerns. However, this is not usually the practice in city governments. Stores are more often placed under the using agency and the goods are inspected as received either by a representative of the

purchasing agent or by an employee of the using agency. Where there is a central storehouse under the control of the purchasing agent, the goods are sometimes inspected when received by a person or persons responsible to the controller, as the chief accounting officer of the city government.

General Purchasing Procedure

There are many variations from city to city in the existing purchasing procedure, so much so, that it is not even possible to consider them all in this brief discussion. We shall, therefore, sketch a general purchasing procedure for a centralized municipal system which, while it does not follow that of any particular city, is based upon the best practices and experience of a number of cities. Such a procedure is briefly as follows:[1]

To begin with, the purchasing agent usually receives from the using agencies of the city government estimates of their purchase needs for a stated period. This period is determined by the purchasing agent according as it offers the greatest advantages in buying. Some goods may be contracted for over a period of a year, others over a period of six months, and still others for not more than three months. Coal is an example of the first group, and groceries of the last group. When the purchase estimates have been received from the using agencies, the purchasing agent usually distributes the commodities contained on them according to the classes of goods he may have established. Frequently he has the authority to revise these estimates whenever he deems the quantities estimated by the using agencies are too large or too small, and he may also determine the quality of the goods according to standard specifi-

[1] The essential elements of this procedure are discussed in subsequent sections of this chapter.

cations that have been adopted. When this has been done, the purchasing agent next proceeds to solicit bids from likely vendors on the various classes of goods. The bids received are usually opened on a specified date and the award made to the lowest and best bidder, in each class; whereupon contracts are entered into with the successful bidders. The using agencies are then notified of the prices fixed under these contracts for the various kinds of goods.

When goods are needed by a using agency, and the city government does not carry them in storehouses, this agency sends a requisition to the purchasing agent. The requisition is usually made out in duplicate, the original copy being sent to the purchasing agent and the using agency keeping the duplicate copy. It is sent to the purchasing agent long enough before the goods are actually needed to allow ample time for delivery from contracts or for purchase and delivery.[1] Following the receipt of the requisition, the purchasing agent makes out a purchase order, which becomes valid as soon as approved by the controller. However, all cities do not require the approval of the controller before the order is placed. The purchase order is generally made out in quadruplicate, the original copy being sent to the vendor, the duplicate copy to the controller, the triplicate copy to the using agency getting the goods, and the quadruplicate copy remaining in the files of the purchasing agent. From his file copy the purchasing agent may make up a purchase record on cards of a convenient size to handle. Such a record is useful in several ways, as will be noted later. The copy of the purchase order going to the using agency serves as a notice that the goods have been ordered. When the purchase order is received, the vendor ships the designated goods to the

[1] It is the practice in some cities to have all requisitions sent to the purchasing agent at a stated time each month.

using agency and immediately sends an invoice of the same to the controller. Some cities require the invoice to be submitted to the controller in duplicate.[1] As soon as the goods are received the using agency checks them as to quantity and quality and makes out an advice of goods received, the original copy of which is sent to the controller and the duplicate copy filed.[2] If the goods are unsatisfactory in any particular, or there is a shortage, the using agency immediately notifies the purchasing agent, who takes up the complaint with the vendor and has it adjusted. If the goods are satisfactory, the purchasing agent's duties are considered at an end with the placing of the purchase order. In many cities, however, his duties extend much beyond this point.

As soon as the controller gets the copy of the advice of goods received, he compares this with the invoice, checks the footings, and approves the invoice for payment. The city treasurer is then authorized to make payment. As a matter of auditing control, although not often done, the controller may have one of his assistants make an occasional inspection of the goods received by the various using agencies to ascertain if these goods are coming up to the standards set by the purchasing agent and to determine if the using agencies are making proper inspections on receipt of the goods. Where laboratory tests are made to determine the quality of goods, the results of these tests should be reported to the controller as well as to the purchasing agent.

The general purchasing procedure which we have just outlined above is shown graphically on the accompany-

[1] Other cities require the invoice to be sent in duplicate to the purchasing agent for his O. K., after which the original copy is sent to the controller and the duplicate copy remains in the purchasing agent's office.

[2] In those cities where the invoice goes directly to the purchasing agent, the advice of goods received is also sent to the purchasing agent, it being necessary for his O. K. of the invoice.

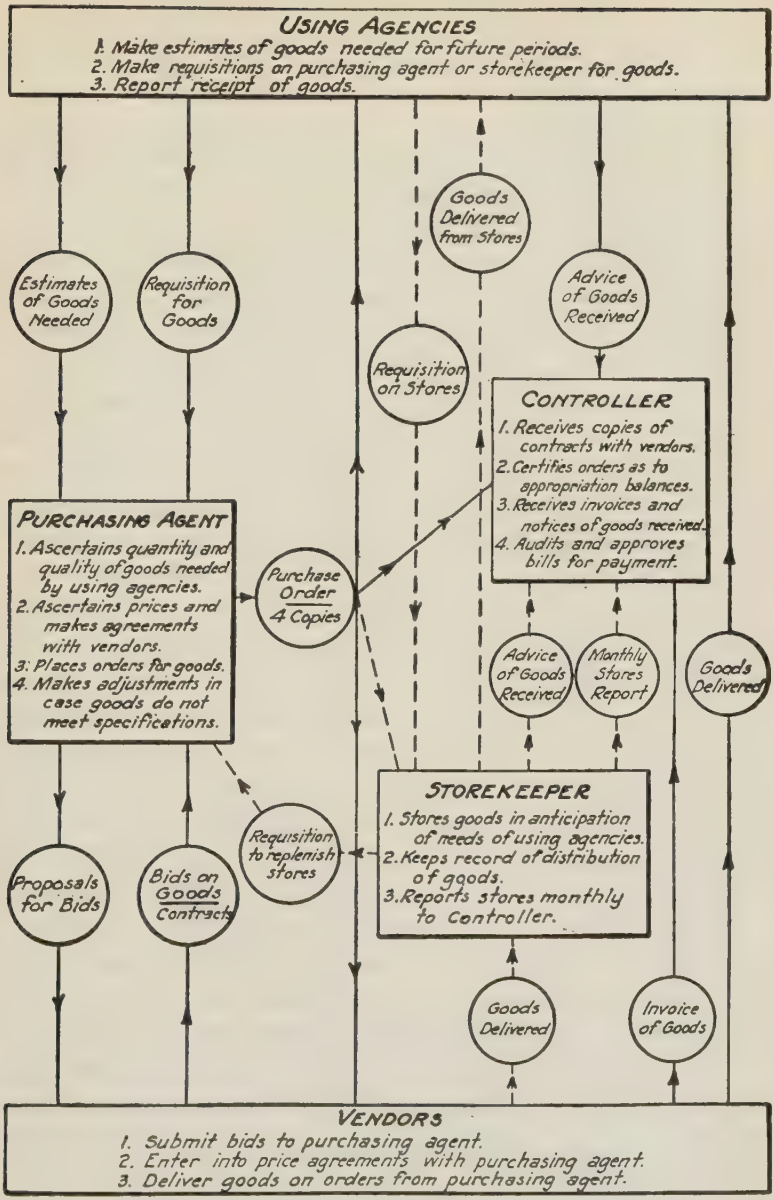

USING AGENCIES
1. Make estimates of goods needed for future periods.
2. Make requisitions on purchasing agent or storekeeper for goods.
3. Report receipt of goods.
Goods Delivered from Stores
Estimates of Goods Needed
Requisition for Goods
Advice of Goods Received
Requisition on Stores
CONTROLLER
1. Receives copies of contracts with vendors.
2. Certifies orders as to appropriation balances.
3. Receives invoices and notices of goods received.
4. Audits and approves bills for payment.
PURCHASING AGENT
1. Ascertains quantity and quality of goods needed by using agencies.
2. Ascertains prices and makes agreements with vendors.
3. Places orders for goods.
4. Makes adjustments in case goods do not meet specifications.
Purchase Order 4 Copies
Advice of Goods Received
Monthly Stores Report
Goods Delivered
STOREKEEPER
1. Stores goods in anticipation of needs of using agencies.
2. Keeps record of distribution of goods.
3. Reports stores monthly to Controller.
Requisition to replenish stores
Proposals for Bids
Bids on Goods Contracts
Goods Delivered
Invoice of Goods
VENDORS
1. Submit bids to purchasing agent.
2. Enter into price agreements with purchasing agent.
3. Deliver goods on orders from purchasing agent.

FIGURE 18. Chart of Centralized Purchasing Procedure for City Governments.

ing chart (Figure 18). The solid lines indicate this general procedure, while the broken lines cover the purchasing procedure for stores discussed briefly in the next paragraph.

Where the city government has established a central storehouse, the purchasing procedure varies somewhat from that outlined above. The storekeeper, upon finding that some of his stores are getting low, sends a requisition to the purchasing agent to replenish stores. When the purchase order has been issued by the purchasing agent for this purpose, the triplicate copy of the order goes to the storekeeper. After the goods have been received from the vendor, the storekeeper forwards an advice of goods received to the controller.[1] The procedure for payment is identical with that outlined above. When the using agencies secure goods from the storehouse, they send a requisition-invoice on stores to the storekeeper in duplicate copies and retain a triplicate copy of the same. The goods are then delivered to the using agency from the storehouse and a copy of the requisition-invoice is sent to the controller. The storekeeper maintains a distribution record of goods and sends a store's report each month to the controller. He may also send a copy of the store's report to the purchasing agent. This is in brief the procedure for storehouse control and distribution of goods.

There are, of course, certain exceptions to the above general procedure, such as emergency purchases, where the using agencies themselves are permitted to buy certain goods. A simple procedure for handling purchases of this type should be worked out by the purchasing agent. Several effective plans are in use in different cities. Such purchases should, however, be kept down to the very minimum.

[1] This advice of goods received may go to the purchasing agent first for his approval, as indicated above in the general procedure.

Purchase Requirements and Standardization of Goods

The determination of the amount of goods to be bought is an important feature of the purchasing agent's work. He has several means of arriving at the purchase requirements. The more important of these are the commodity cards, the budget estimates, the stores inventory, and the purchase estimates. The commodity cards are kept by the purchasing agent. They show the amount and price of each commodity purchased during the preceding period and for what using agency. The budget estimates show the supplies, materials and equipment needed during the fiscal year by each using agency. When these estimates have been adopted by the city council the purchasing agent can accept them as a fairly accurate statement of the amount and general character of the goods he will be called on to purchase for each using agency. The store's inventory shows the amount of goods purchased during the preceding period and on hand applicable to the future period. The purchase estimates are made up by the using agencies whenever called for by the purchasing agent and for whatever period he may determine. They show the immediate needs of the using agencies and should be more accurate than the budget estimates. The purchase estimates usually state the date upon which the goods are needed by the using agency and the quantities required at each delivery.

With the above information before him, the purchasing agent can proceed to develop specifications for the goods needed and to get out proposals for bids. The development of specifications involves standardization or simplification, as it is sometimes called. Standardization of goods has been defined as "the selection of the optimum number of types, sizes and grades required, and their definition by means of adequate specifications

upon the basis of which bids are requested."[1] The standardization of goods has several salutary results. Definite specifications save time in purchasing and encourage better bids as a rule. They prevent in a very large measure collusion between vendors and users. They enable the purchasing agent to buy in large quantities by consolidating purchasing needs. Where storehouses are established, standard specifications facilitate the maintenance of the stock and eliminate waste and surplusage due to individual tastes and preferences. Standardized goods may be more easily interchanged between the various using agencies. The work of inspecting such goods is greatly simplified. By means of standardization bids are placed on a more comparable basis, making for fairness in competition. Disputes leading to litigation are oftentimes avoided through standardization, which compels competitive vendors to speak the same language. Graft and favoritism in awarding contracts are likewise practically avoided. Of course, a purchasing agent must be careful not to adopt specifications for the city government that really secure for it inferior goods at higher prices and with slower deliveries than is the case with commercial concerns.[2]

The purchasing agent usually follows certain steps in bringing about the standardization of goods. In the first place, he selects those articles that involve the largest expenditures and he takes as his tentative basis for classification the specifications of the United States Bureau of Standards, or such private agencies as the

[1] See P. G. Agnew, "Results of Standardization of Supplies," *The Annals*, May, 1924, pp. 269 ff.

[2] The United States Bureau of Standards has recently published a "National Directory of Commodities' Specifications" which brings together a vast amount of information on this subject. It consists of a classified list of all the published specifications for goods, whether issued by governmental, commercial or technical bodies. It is a valuable guide for purchasing agents and others interested in buying standard goods.

American Engineering Standards Committee. In the second place, he investigates the exact condition of the market upon which he must rely for the goods, and thus determines the effect of local conditions upon whatever standards may be adopted. In the third place, he consults all of the using agencies, and he generally has a conference with their representatives in drafting the tentative specifications. Lastly, he does not consider the specifications as final until he has tested them out on the basis of actual competition.

The arrangement of proposals, or schedules, for bids is an important matter. Purchasing agents usually group together goods of a like character, so as to establish several classes, such as, groceries, stationery, dry goods, leather goods, fuel, drugs, hardware, and so on. These classes are set up in separate schedules; then the schedules can be sent to vendors in each line. Such arrangement by classes facilitates bidding. Complete information as to deliveries and other conditions ordinarily accompanies all proposals that are sent out for bids. This information includes a statement of the qualities desired, quantities to be delivered each time, frequency of delivery, place of delivery, tests to be applied, whether or not samples are required, requirements for submitting bids, and conditions of payment for goods. All red tape and all speculative elements ought to be eliminated as far as possible. The purchasing agent should aim to show in his proposals quantities and delivery conditions that are attractive to vendors. Deliveries in bulk, rapid transaction of business, and quick payment are generally preferred by vendors. Deliveries at an off-season for goods are usually attractive.

Market Conditions and Tendencies

The purchasing agent should not make it his sole purpose to save money, which he can do by buying the

smallest quantity of goods for the lowest price, but his real job should be to secure the right kind of goods to satisfy the needs of the various activities of the city government. The basis of purchasing judgment should not be price but performance. This requires a comprehensive knowledge of the needs of the city government, coupled with a broad knowledge of the goods to be procured. The purchasing agent should know something of the general business situation; he should follow industrial conditions; he should be acquainted with the sources of supply, the methods of manufacture in each of the classes of goods that he buys, the variety of goods on the market, and he should keep informed on the future trend of prices.

In finding out where he may obtain goods, the purchasing agent has many sources of information. Trade journals, business directories, and advertisements furnish the most common sources. Of course, the vendors listed in these publications must be carefully sifted. Valuable information may be secured from salesmen and upon application to dealers. Local commercial organizations may sometimes assist the purchasing agent in securing information as to the possible sources of supply. Once the purchasing agent has arranged a list of prospective vendors, he must determine their standing in business. This may be done through such sources as Dun's and Bradstreet's, which give the ratings of practically all business concerns.

The purchasing agent should be acquainted with the variety of goods on the market. He should not decide on one article and use it to the exclusion of all others when the supply of this particular article is scarce. He should find out if there are not one or two good substitutes that may be purchased at a lower price. Goods should not be bought on mere precedent, since qualities are constantly changing. A constant check should be

kept on the use of the goods to determine the durability, deterioration, and so forth. The purchasing agent should continually watch for new materials and supplies that may prove superior to old ones.

The purchasing agent should keep informed as far as possible on the future trend of prices. The importance of this is illustrated by the depression of 1921, when millions had to be written off of inventories because of the failure of most buyers to anticipate the coming slump in prices. The means at hand at the present time for forecasting future price trends are not very satisfactory from the purchasing agent's standpoint. Certain systems of forecasting business conditions have been devised by private agencies for the benefit of their clients. This is, however, a service that might profitably be undertaken by the national government. Recently, there was a proposal to have the United States Department of Commerce assemble certain figures along this line for American business men.

Soliciting and Receiving Bids

It is usually considered more advantageous to the purchasing agent to ask for bids upon groups or classes of goods rather than upon items. Vendors seem generally to prefer this method. Class bids are usually more attractive than item bids and permit of delivery in bulk. Of course, it is necessary to have unit prices stated in class bids as a means of comparison.

There are three general methods of soliciting bids. These are: (1) by advertisements in newspapers or official papers, (2) by bulletin board notices, and (3) by direct communication with the vendors. Those who favor the first and second methods claim that while publicity of proposals may not secure competition, it protects the city government to a certain extent against graft and favoritism in purchasing its goods. From a

strictly business standpoint, the third method seems more satisfactory.

Several cities solicit bids by placing advertisements in local papers for a period of ten days or two weeks prior to the date set for opening bids. They usually set a minimum amount below which they do not advertise for bids. This amount varies among the cities from $250 to $1,000; usually it is $500. Advertising for bids in newspapers is an expensive method and oftentimes not very satisfactory to vendors. The requirements are very often stated in the most general terms, the specifications being left out. Such solicitation usually amounts to very little, since most local newspapers are not very widely read, and especially is this true if the advertising is limited to official papers.

The use of bulletin board notices is quite common among cities. These notices are placed on the bulletin boards at the city hall. They may be very brief, merely stating the classes of goods to be purchased and requesting the vendors or their agents to call at the purchasing agent's office for specifications. Some cities post the complete specifications so that the vendors can go through them and copy those items they are interested in bidding on. Bulletin notices may give full publicity to local dealers, but they do not extend to outside dealers. This method, therefore, does not stimulate full competition. It should always be supplemented by the third method.

Direct communication with vendors or their agents by mail, telephone or interview, is considered by the majority of purchasing agents as the most valuable method of soliciting bids. While this method may not give full publicity, it will secure the attention of vendors better than the other methods. It is a means of reaching a large number of selected vendors, and therefore of stimulating and increasing competition.

There is a tendency in every city to patronize home

trade, buying from local dealers whenever they can furnish the goods in preference to dealers in other cities. If great care is not exercised by the purchasing agent in soliciting bids, this may result in the city paying higher prices due to local rings or combinations. There should be no geographical limit to buying goods for a city government.

Certain requirements are always established for bidding. Sometimes the vendor is required to send a certified check with his bid, amounting to from 1 to 10 per cent of the total of the bid. Where bids are solicited by direct communication, the purchasing agent is usually satisfied with the integrity of the vendor and does not require a deposit for bidding. If the purchasing agent is worthy of his job, such a requirement is not usually necessary. In bidding on some articles samples are required, which are examined or tested and the results considered in passing upon the quotations of the vendor. Samples, however, should not supersede specifications. All bids are generally required to be submitted in sealed envelopes to be opened upon a certain day at an appointed place and hour.

Awards and Contracts

The negotiations of governmental purchasing usually differ widely from those of commercial purchasing. In commercial purchasing the type of persons handling the purchasing work and the independent audit are considered a sufficient check on graft. But not so in governmental purchasing. Practically all cities require considerable publicity to be given to purchase negotiations. Bids are opened at a stated time, and the prices bid are often tabulated and made open for public inspection. Some cities go so far as to require bids to be submitted in duplicate, one copy of which goes to the controller and is held as an independent check on the award until

after it is made. While such procedure in conducting purchasing negotiations may have certain advantages in governmental purchasing, it is open to objections from the purely business standpoint. Most commercial purchasing agents regard the exposing of prices of competing firms as poor policy. Perhaps governmental purchasing goes a step too far in this direction. Commercial purchasing agents are usually free in making awards without consulting superior administrative officers. City purchasing agents are bound by certain legal restrictions, in that they must act usually with the authority of a superior officer or board, must secure competition, and so on. However, such restrictions are more or less inherent in the governmental system and cannot be avoided.

In order to carry out the legal provisions generally in force, it is necessary that contracts for goods between city governments and vendors must be fulfilled in substantial compliance with the terms and conditions under which they are let. No officer of a city government has a right to vary the terms or waive the rights accruing under such contracts. In private business, however, the person awarding a contract for goods can do anything he chooses, since he is spending his own money or using his own property. He is free to make whatever changes he may desire in the contract or to make any kind of settlement he can arrange with the vendor after the performance has been completed.

The forms of contracts for goods and the conditions attaching to them vary widely in different cities. Some cities use contract forms, the conditions of which are very involved; others use forms in which some important conditions do not appear. In view of the great variety of contracts now in use, the United States Bureau of the Budget recently issued a pamphlet on "Standardization of Government Contracts" in which it set up tenta-

tive contract forms and general instructions to vendors. Purchasing contracts generally include six main points, as follows: (1) period covered by contract, (2) security by bond or otherwise for faithful performance, (3) articles under agreement, (4) quantity, (5) price per unit or total, and (6) delivery conditions. One or more of these elements may be left indefinite or may not be stated. For example, the period of the contract may be indefinite; it may last until notice of cancellation by either party. There is a tendency among city purchasing agents to enter into contracts that are indefinite as to quantity, or that fix only the maximum quantity. This gives some degree of flexibility in buying, but it is often not possible to contract in this manner because of legal provisions. The usual periods of contracting in cities are three, six, or twelve months, depending upon the class of goods and upon price conditions.

Orders and Delivery of Goods

Goods may be bought on contract purchase, as discussed in the preceding section, or on non-contract purchase. The latter is a purchase on a temporary agreement or in the open market. In this case, the purchasing agent usually gets quotations from several vendors either in written form or over the telephone. Sometimes, however, he may watch the trend of the market and buy without contracts or bids whenever he deems it advantageous and economical to the city government. A purchasing agent who has good judgment may save the city government thousands of dollars in this way. Although government purchasing, as pointed out above, is pretty well tied up with statutory enactments, there is a recent tendency to give more discretion to purchasing agents in buying. This seems advisable.

If the volume of business carried on by a purchasing agent is very large, he should have a system for follow-

ing up the purchase orders after they have been placed with the vendors. This sometimes prevents dissatisfaction arising among using agencies on account of their failure to receive goods at the designated time. The system most generally used is the "tickler" file, into which a card is inserted when a purchase order is placed. This card is placed a few days ahead of the expected delivery. When the clerk in charge of the file comes to this card, he sends a follow-up to the vendor. This follow-up acts merely as a reminder, and it is not so important in governmental as in commercial purchasing.

Goods are usually delivered by vendors to the point of destination without extra charges. Invoices of the goods shipped are immediately sent to the officer or officers designated on the purchase order or by agreement. Purchasing agents sometimes furnish the invoice forms, but it is perhaps more satisfactory to let vendors use their own forms. Vendors generally prefer to do this. From one to four copies of the invoice are required, depending upon the procedure. Two copies, however, submitted directly to the controller, should be sufficient.[1] One copy of this invoice may be sent by the controller to the using agency or the storehouse receiving the goods to be filed as a matter of record.

As soon as the goods arrive at the using agency or the storehouse, they should be checked as to quantity and inspected as to quality. The inspection of goods upon delivery is one of the weakest points in governmental purchasing. This is usually due to the failure to locate definite responsibility for checking and inspection upon some official. Goods are too often received by subordinate employees at departments and institutions. Such persons rarely possess the necessary knowledge for

[1] If local procedure requires it, the invoice may be submitted first to the purchasing agent for his approval, after which it goes to the controller. In this case, three copies would be required, one of which the purchasing agent would keep in his files.

proper inspection work. Standard specifications are of no avail if goods are not properly inspected upon delivery. With some articles it is necessary to make frequent laboratory tests in order to be certain of the quality. In some cities the purchasing agent directs the inspection of goods and for that purpose maintains a small force of inspectors. This method is perhaps not as satisfactory as having the inspection work done by representatives of the controller. By the latter method the city may establish an independent check upon the work of the purchasing agent.

In case goods are unsatisfactory for any reason, they are rejected by the using agency or the storehouse, and the purchasing agent is at once notified. He then takes the matter up directly with the vendor and arranges for the return of the goods at the vendor's expense. Sometimes an adjustment may be made in the price, so that it is to the advantage of the purchasing agent to retain the goods rather than take the chance of going into the open market to buy a substitute for immediate use.

Storage and Salvage of Goods

The storing of goods is not so important in governmental as in commercial purchasing. Supplies and materials are bought by governments to be consumed rather than to be converted into finished products for the markets. The necessity, therefore, for having a stock on hand large enough to insure against the interruption of a manufacturing process does not exist in governments. Cities may get along and purchase goods economically without any central storehouse, so long as each institution has a small storeroom and refrigerator for supplies and eatables. Some of the larger departments may need a storeroom in which to keep on hand a small stock of supplies or materials that are being used continually.

Where a central storehouse is maintained the storekeeper should make a report each month to the controller, showing goods on hand at the beginning of the month, goods received during the month, goods delivered during the month, and goods on hand at the end of the month. This report and the reports on the various transactions during the month should enable the controller to check the condition of the stores. The storekeeper should maintain a few simple records, the most important of which is the perpetual inventory card or record.[1]

The salvage of used, discarded or obsolete goods is a matter that should not be overlooked by the purchasing agent. In most cities considerable money may be returned to the treasury by this means. The things worth salvaging include scrap iron and steel, copper and brass, aluminum, pewter and zinc, leather, rubber, paper, tires, barrels, lumber, rags, and glass.

[1] See H. B. Twyford, *Storing*, p. 127.

CHAPTER X

TREASURY MANAGEMENT

Treasury management comprehends the collection, custody and disbursement of city funds. Moneys from various sources, such as taxes, special assessments, fees, and so on, must be collected and placed in the city treasury to run the government. During the time these moneys are in the treasury, they must be safely kept or invested. When purchases have been made or obligations incurred, these must be paid by the passing of cash between the city treasury and the debtors or creditors of the government. These functions are properly within the province of the treasury, subject of course to appropriate control on the part of the central accounting office.

Centralization of the Treasury Functions

The desirability of centralizing the treasury functions under a bureau of the treasury in the department of finance has been discussed briefly from an organization standpoint in Chapter II.[1] It was there proposed that the treasurer should be responsible for these functions, that he should be the collecting, custodial and disbursing officer of the city government. It is still the practice in some cities for the collector, an officer independent of the treasury, to gather the property taxes and sometimes other revenues and to turn these over to the treasurer. The functions of such an officer should be consolidated with those of the treasurer and handled under his direction.

[1] See above, pages 17 ff.

In so far as practicable, all collecting should be done by the treasurer's office. Financial executives generally recognize that such practice is an added advantage to the public convenience, since a citizen can pay all charges against him at one office, whether they be taxes, special assessments, water charges, or fees. There are circumstances, however, under which the uniform application of this practice may be questioned. One of these arises in connection with the collecting of water rates or other charges for services of municipally owned utilities. Sometimes a charge against a consumer is disputed; in which case, it is often more convenient to have the collecting done in the utility's office where the consumer's account is usually kept. Again, the municipal office where the transaction is negotiated may be located in a separate building or otherwise widely separated from the treasurer's office, thus greatly inconveniencing the public by having to travel from one to the other. Although these circumstances constitute reasonable objections in some instances, they are often overemphasized and usually can be remedied through provisions of the collecting procedure. In any case, collecting officers stationed in other departments or offices should be placed under the authority of, and be responsible to, the treasurer.

As a rule, the decentralization of treasury functions occurring in many cities is attributable largely to old laws and practices which have not been revised to conform to changed conditions. Licenses, permits and fees are usually collected in widely scattered offices. Current taxes are sometimes collected in one office, delinquent taxes in another, and special assessments in still another. Not infrequently, the various independent collecting officials retain custody of the funds which come into their possession for comparatively lengthy or indefinite periods. Disbursing procedure is also occasionally

decentralized. In some cases, the city treasurer transfers lump sums to spending officers for the payment of a wide range of bills. Failure to centralize the collecting, keeping, and disbursing of city funds divides responsibility for an important group of financial functions and makes effective auditing control not only more difficult but in some cases practically impossible.

General Collection Procedure

It will readily be understood that there are certain steps in the general collection procedure, which immediately precede the actual collecting or taking in of the cash. First, the tax rolls, special assessment rolls, and rolls or lists of utility charges and other miscellaneous sales and charges must be handed to the treasurer, as his authority to collect. Next, the bills or notices of these charges must be prepared and delivered to the respective payers. In the case of licenses, permits and fees, application for the privileges for which a charge is to be collected, must be made and approved or accepted.

Preparation of Tax Rolls and Bills

The forms for the tax rolls and bills, the number of copies of each which must be prepared, and the method of their preparation are prescribed in many states by legislative enactments. These legal provisions, whatever their original purpose may have been, frequently add greatly to the volume of work entailed in the preparation of the rolls and bills, without providing better control or furnishing useful information to the taxpayer. Only the elements essential to adequate tax administration, and the methods which have been found to promote speed and accuracy will be discussed here.

The basic information without which no adequate property tax roll can be prepared is the following: the

description of each parcel of taxable property, its location, and its assessed valuation. The name and address of the owner are desirable but not indispensable. The city of Fort Worth, Texas, for instance, has for years collected real estate taxes without maintaining a record of owners' names, and has been sustained by the courts in so doing. For real estate, the description of the property by the system of block and lot numbers outlined in Chapter XI, is sufficient for all administrative purposes and reduces routine clerical work to a minimum.[1] Legislative sanction is, of course, a prerequisite to its adoption.

All of the information listed above is collected and compiled into a roll by the assessing office. In some cities—New Orleans, for example—the essential information contained on the assessors' rolls must be copied into another roll for the use of the collecting officials. A number of cities on the other hand, have eliminated the necessity for this recopying by the use of a properly designed form for the roll in which the assessor makes his original entries. For this purpose, an additional column is added at the right of the page for inserting opposite each item of taxable property listed, the amount of the tax payable thereon. A column at the left of the page for the entry on the roll of the number corresponding to that of the tax bill described in Chapter IV serves to establish the basis for auditing control.[2] By the use of additional columns for the entry of miscellaneous adjustments, interest, discounts, rebates and payments, the same form may be made to serve as a tax ledger. In short, a great deal of the laborious clerical work involved in the complete or partial copying and recopying of information to which many cities resort can be done away with by the use of proper forms, without the

[1] See below, pages 333 ff.
[2] See above, page 121.

elimination of any essential steps by assessing, collecting, accounting or auditing officials, and without the sacrifice of any detail in the full information to which the taxpayers are entitled.

The next step in the preparation of a tax roll after the assessor has made his basic entries is the extension of the roll. This involves the calculation and entry in the proper column of the amounts to be collected from individual taxpayers. In some cities, this work is done in the office of the collecting official and requires the employment of a number of temporary clerks. In others, the duty of extending the rolls devolves on the assessing office where, if the office has a staff adequate to discharge its own duties, there are as a rule a sufficient number of permanent employees to expedite the work. The reasons for the latter procedure are indicated more fully in Chapter XI.[1]

In the extension of tax rolls, a number of time saving methods have been developed. Instead of laboriously multiplying every individual item of taxable value by the tax rate, a table is prepared containing a series of multiples of the tax rate, from which the amount of the tax corresponding to any assessed valuation may be read off at a glance. In the better equipped offices, these tables are prepared by the use of calculating machines, the requisite number of copies for the use of all clerks are typed, printed or blue printed; and thereafter the process of extending the roll consists simply of entering on the roll the multiples corresponding to the successive assessed valuations. As in the case of all tables of this type, the chief sources of error to be guarded against are misplaced decimal points.

Where legislative enactments or administrative methods require the preparation of tax bills, these bills are also frequently made up in the assessor's office. A few

[1] See below, pages 317, 375 ff.

well administered offices have devised bill forms that make it possible to write the tax bill on the same machine that prepares the tax roll, a double ribbon machine being used for the purpose. The bill is fed into the machine once when the name of the owner, the description of the property and the assessed valuation are entered on the roll, and again when the extended taxes are entered. In this way the tax bill contains an exact duplicate of the necessary information entered on the roll itself. By the use of adding machine attachments on the typing machine, it is easy to maintain a running check both on the accuracy of the transcription of the assessed values and on the extension of the individual taxes.

Applications for Licenses, Permits, etc.

In the case of some kinds of licenses, formal applications must be acted upon by administrative officers outside the finance department before the licenses are granted. In still other instances, the applications require no action other than the granting of the license and the collecting of the charge. These same circumstances may occur, likewise, in connection with permits and miscellaneous fees. Thus, from the standpoint of collection, licenses, permits, and fees may be divided into those which require official action, other than that of merely collecting, and those which do not require such action.

These distinctions allow a collection procedure which can be centralized under the treasurer and at the same time conform with other administrative provisions. For those collections which do not require other official action, the payer would present himself only at the treasurer's office where the charge would be collected and the document issued. For those collections which do require other official action, the payer would present himself both at the office where the application is to be acted

upon or the document issued and at the treasurer's office to pay the charge. The charge should be collected before the document or other form of receipt is issued to the applicant.

Form in Which Checks Should Be Accepted

When checks on bank accounts are accepted by the city from payers, adequate precautions should be taken to insure their validity. What these precautions are is a matter of common knowledge and attention need only to be called to them here as an element in the collection procedure. In some cities only certified checks are accepted. Although it is often done, endorsed checks should never be accepted; that is, checks which are not drawn by the payer. Checks of a larger amount than the amount of the payment should not be accepted. Nor should checks be accepted which are drawn to the personal order of the collecting officer or one of his employees, or to the order of cash.

Daily Balancing and Depositing of Cash

The daily balancing and depositing of cash is another element in the collection procedure, that should be noted. In order to permit treasury employees to balance the cash before the end of the working day and to make the proper entries in the records, the collecting office may be closed to the public earlier in the day than the other city departments and offices. Each day's receipts should be entered in the register of cash receipts, and a cash report prepared for the controller at the end of each day.

The cash receipts of the city treasury should be deposited daily in a bank, preferably on the day they are collected. The amount deposited should equal the receipts of each day, or the total receipts since the previous deposit. The treasurer should not withhold part of any

day's receipts to use in making change or for any other purpose. Such a practice disturbs the auditing procedure and serves no valid purpose. To provide change, the treasurer should be advanced the necessary amount by the controller. This amount would then be carried in the controller's accounts as "cash on hand"; it would fluctuate as the controller authorized it to be increased or decreased.

A related matter is that of "petty cash funds" operated on what is known as the "imprest system." Under this system, a sum of cash is advanced by the treasurer to such officers as may find it necessary from time to time to make an immediate outlay of cash for which a claim cannot be put through the regular channels of audit and payment. When such cash advances are depleted, the spending officer prepares a voucher of the amount expended which is regularly audited and his advance or "fund" reimbursed with the amount of the voucher. These advances are carried in the controller's accounts as "cash on hand."

Collection of Property Taxes

In some cities where methods of collection have not kept pace with business practices, taxpayers are required to pay their bills in person and in cash at a designated office. That procedure frequently involves two trips to the office of the collector or treasurer on the part of the taxpayer—one to find out the amount of the bill, the other to make the payment. On both occasions, furthermore, it may involve annoying delays and standing in line if not actual expense to the taxpayers. Certain large public utility corporations with property scattered in small amounts over many tax districts, for instance, have reported that it costs them more in some cases to ascertain the amount of the taxes levied against them than the taxes amount to.

Submission of Tax Bills

Grocers, butchers, electric light companies and others who sell goods or services to the public, have found that the great majority of their customers will remit a check promptly if a bill is sent. Many of the cities have learned this also, and in spite of the fact that the law may not require the submission of a bill, they nevertheless conform to prevalent customs, and thereby save time both in their collecting offices, and to the taxpayers. Even when the assessing office maintains an accurate record of the name of the owner and of the location of all parcels of taxable property, it becomes necessary, in such cases, for the collecting office to maintain a supplementary list of the addresses of taxpayers, because taxpayers frequently live elsewhere than at the addresses where their property is located. It will no doubt be somewhat unusual to find in any collecting office a complete and accurate list of addresses for all taxpayers, but with a little effort it can be kept up to date for all except a few of the individual nonresident owners of vacant property.

In the delivery of bills several methods are followed. In some instances, the assessing clerks are required to deliver the tax bills to taxpayers living in their districts, tax bills to nonresidents being sent by mail. In others, the mails are resorted to for all bills. Any sweeping generalization that one or the other of these methods is always preferable would necessarily be arbitrary. If the tax calendar is so arranged that the bills are ready for distribution during a dull period in the assessor's office when the time devoted to distributing bills will not interfere with, or will dovetail into, the more important work of the assessing clerks, the city can save the cost of postage by having these clerks distribute certain bills to resident taxpayers.

Payments in Installments

Another device to which cities have resorted in order to make the payments of taxes as easy as possible for the taxpayers is to permit the payment in two or more installments. Legal authority for this method is usually a prerequisite to its adoption, and it is advisable only when the tax rolls can be opened for payments rather early in the fiscal year. This practice is already widely followed and is no doubt destined to become general.

Tax Discounts

In order to stimulate early payments of taxes, cities frequently offer discounts. Before budget making had developed to any great degree, and before temporary loans in anticipation of the collection of taxes had been widely authorized, this practice seemed to facilitate earlier payments of taxes, but only at the expense of building up tax deficiencies equal to the sum of the discounts allowed. Nearly all cities which have developed an adequate budget procedure, resort to borrowing in anticipation of the collection of taxes. Early payments, therefore, reduce the amounts which it is necessary to borrow, and the city can afford to offer a discount to taxpayers at the same rate of interest as that borne by the temporary loans. On the other hand, it requires time to calculate the discounts on a large number of odd amounts, the added labor may slow up the entire collecting process, and the way is opened for errors. If the interest rate and the discount rate are equal, therefore, the cost in interest to the city of obtaining the cash for its current expenditures in advance of the due date for taxes will be the same in either case; but in order to give the taxpayers the benefit of the bank rate on taxes paid in advance, it subjects its own employees to added labor and the taxpayer to the possibility of delay and

of petty but nevertheless annoying errors in payments. The question of whether or not to offer discounts on advance payments must depend in any city upon the difficulty of obtaining temporary loans, on the current rate for such loans, and on the length of time by which the payment of any considerable amount of taxes can be advanced. Where the tax calendar is so arranged that only a short period elapses between the date when taxes first become due and payable and the date on which they become delinquent, the added work entailed by the discount system would seem to outweigh any advantages which may accrue either to the municipality or to the taxpayer.

The Annulment of Taxes Because of Technicalities

Some state laws still contain provisions which enable unscrupulous taxpayers to have their taxes set aside because of some minor irregularities in the description of the property or in the manner in which the tax roll was prepared. While the original purpose of such provisions may be conceded to have been the enforcement of careful administration by assessors and collectors, its usual result is the exact reverse. Public officials working under the pressure entailed by the preparation of a voluminous tax roll every year are as fallible as other human beings are, and it is inevitable that even the most conscientious clerical assistants will from time to time fail to cross a "t" or to dot an "i." There will always be taxpayers willing to take the full advantage permitted by law of all such slips with the result that deficiencies will be created to the extent of the taxes set aside. In some states, fortunately, courts are no longer given the power to annul taxes on technical grounds. They may require the correction of errors, but to the extent that the taxes levied were equitable under the law, such taxes must stand.

Delinquent Property Taxes

No matter how carefully the budget may have been drawn up, its primary purpose of balancing revenues and expenditures may be defeated by inadequate tax collections. In normal cities, the bulk of the taxes is generally paid promptly without any resort to compulsion on the part of the city government. However, there are always a few taxpayers who, for one reason or another, will not or cannot pay their taxes. It then becomes necessary for the city government to enforce collection against them.

A Tax a Lien on Property

In theory the laws of most states provide that the taxes levied or to be levied become a lien on taxable property as soon as the budget has been adopted and the assessment roll approved. It is rare that any municipality succeeds in enforcing these liens down to the last dollar. Under an adequate system of law and administrative procedure, there would seem to be no valid reason for the existence of uncollectible taxes on real estate. No system has ever been devised, however, for the collection of all the taxes levied against polls and personal property. Even where the law provides for the seizure and sale of property by the tax collector or other officer, or for reducing the tax bills to judgments, the delay incident to the labor of compiling the assessment roll which occurs between the date when property and polls were assessed and the earliest date that the taxes levied thereon can be made due and payable, makes it inevitable that a certain number of polls and a certain amount of personal property will have left the jurisdiction of the collector before he can resort to the remedies provided by law. This statement is notably true in metropolitan districts composed of a number of adjoining political

units. The importance of establishing only valid assets as a basis for municipal expenditures has brought about a tendency toward the exemption of both polls and personal property in such areas, either by legislative or by administrative action.

The Enforcement of Tax Liens

There are now no obstacles in a number of states to prevent the rigid enforcement of tax liens on real property. The older tax sale laws proceeded on the theory that a governing body could dispose of something at a tax sale which it did not in fact possess, and authorized public officials to sell to the highest bidder "an absolute estate in fee" or "an interest for a term of years" in the property on which a delinquent taxpayer had failed to liquidate his debt within a stipulated period. Prospective purchasers looked doubtfully on offerings of this type. The newer tax sale laws authorize a municipality to sell simply the lien against the property which was created by the levy of the taxes, and provide that the purchaser may record his lien in the public register of mortgages on real property, and that, after the expiration of a stipulated period, he may bring suit to foreclose in the manner provided by law for the foreclosure of mortgages in general.

A good example of the legal provisions relating to tax sales is found in the New Jersey tax sale law.[1] It provides that the tax collector must compile as of July 1 a list of all unpaid taxes levied against real estate in the fiscal year closing on December 31 next preceding; that he must add to the delinquent taxes all delinquent special assessments for local benefits and other municipal charges such as water rates, etc., which constitute a lien and are in arrears; that he must calculate the accrued interest on all delinquencies; and that, after due public

[1] N. J. Public Laws, 1918, ch. 237 and subsequent amendments.

notice by a posting of the lists and by their publication in a newspaper circulating in the municipality, he must offer the liens for sale at public auction, for the face value of the lien including all accrued interest to the date of sale, the cost of publication, and so forth. The liens are to be sold to the bidders who offer to accept them at the lowest rate of interest not exceeding 8 per cent per annum. The sale may be adjourned from day to day and from week to week at the discretion of the collector upon public announcement of such adjournment, and all liens which are not disposed of to bidders during the course of such sale must be assigned to the municipality at the maximum rate of 8 per cent. The municipality has the same rights and remedies in such case as private purchasers have. After two years the right of redemption may be barred and the mortgage foreclosed.

In order to illustrate what happens in a normal community operating under a law such as that of New Jersey, let us assume that the municipality has borrowed money in anticipation of the collection of all or part of the current taxes. Let us assume that 90 per cent of the taxes levied for the support of the budget have been collected prior to the end of the fiscal year in which they were levied and that all the expenditures authorized by the budget were made in full prior to the close of the fiscal year, out of the taxes actually collected, plus borrowings in anticipation of the collection of the remainder. That would leave temporary notes outstanding over and above available cash in hand, amounting to 10 per cent of the total tax levy, and supported by an exactly equivalent amount of delinquent taxes. Let us further assume that one-half of the delinquent taxes are paid to the collector during the six months intervening between the close of the fiscal year and the date as of which the liens are offered for sale. Under the law, such payments would

of course include interest and costs, so that the city would be able to retire another 5 per cent of its outstanding temporary loans out of the proceeds after first having paid interest and costs. When the date of the sale arrived, the city would receive in cash from the successful bidders the full amount of each lien sold plus interest and costs to date, and would again be able to clear up a percentage of the remaining outstanding loans. The remainder of the unsold liens would now be formally assigned to the municipality, and converted into the equivalent of first mortgages on real estate which should prove more than ample security for the support of the remnant of the tax anticipation notes still outstanding. In converting these valid assets into cash for the purpose of retiring the remainder of its outstanding temporary loans, the city would have two courses open to it. It could foreclose the mortgage as any other mortgagee would do and dispose of the property in fee simple, or it could again offer the lien for sale together with all additional accrued interest and costs.

Under the law in question, furthermore, the liens established by subsequent tax levies or other municipal charges against a property which has passed into the hands of the municipality at a tax sale, would automatically enter into the mortgage created by the first tax sale, without recourse to further tax sale procedure. This provision eliminates much useless red tape and tends to combine successive liens based on a series of delinquencies into one consolidated lien.

Obviously, the above procedure is applicable only to the creation of valid assets out of delinquent taxes on real property. No comparable method has yet been devised for the conversion of delinquencies on personal property into assets adequate for the support of the temporary loans incurred in anticipation of their collection. Furthermore, even in the case of real estate, a tax sale

procedure based on the methods outlined above cannot correct errors growing out of faulty administration in the earlier stages of tax administration. Duplicate assessments, erroneous assessments, and illegal assessments which may have entered into the aggregate assessed valuations on which the tax rate was based, must inevitably lead to a deficiency on the revenue side of the budget. Efficient tax collection, in other words, must be based on the prerequisite of accurate assessments.

Effect on Liens of Taxes Levied by Overlapping Jurisdictions

Another situation which militates against adequate and complete tax collections is to be found in those states where two or more governmental jurisdictions levy and collect taxes against the same property. Under such conditions, two or more separate liens may be offered for sale against one property in the course of a year. In some cases, the law makes no distinction between the priority of these liens; in others, the lien for county and state taxes, for instance, is given priority over the lien for municipal taxes. When delinquencies occur in states of the first class, the lien which is looked on with most favor by purchasers is that which under the tax calendar can be first offered for sale. In the city of Buffalo, for instance, municipal tax liens find a more ready market than liens for county and state taxes on the same property simply because the city is able to hold its tax sale in advance of the county's tax sale. In Charleston, South Carolina, on the other hand, the municipality sometimes has trouble in disposing of its tax liens because the liens for state and county taxes which come on the market at a later period have priority over municipal liens. The efficiency of municipal tax collections may therefore be adversely affected by the unnecessary duplication of the tax collecting agencies.

Custody of City Funds

Cities uniformly deposit their funds in banks for safekeeping. The points to be considered in the selection of city depositories are (1) their financial strength, (2) the security they furnish, and (3) the rate of interest they pay for municipal funds. Only the first two of these points are taken up here. The rate of interest, because of its bearing on municipal revenues, is discussed in Chapter XIII.[1]

The financial strength of banking concerns, which act as city depositories, is an important factor. Sometimes a definite limit is fixed upon the amount of city funds a bank may have at any one time irrespective of its financial strength. In Chicago the maximum that may be deposited in any banking concern is determined by law in relation to its capital, surplus and undivided profits. The inactive deposits of Detroit are distributed among the local banks in proportion to their capital and surplus.

Practically all city governments require depositories to give security to guarantee the safekeeping of their funds. Philadelphia is a notable exception, its deposits not being secured. Large balances are maintained, averaging about $15,000,000 throughout the year. In New York City the banks are required to furnish security on the inactive, but not on the checking accounts. The general types of security are the corporate surety bond and collateral. Usually corporate surety bonds are preferred to collateral, since there is a certain amount of inconvenience in handling and accounting for the latter. When surety bonds are accepted, the financial stability of the surety companies making these bonds should be carefully investigated. The general practice is to accept as collateral only federal, state or local bonds; that is, to con-

[1] See below, pages 460 ff.

fine the acceptable security to those classes of collateral which do not greatly fluctuate in value.

There is no general rule as to the distribution of city funds among banks. The New York City funds were more widely distributed a few years ago than they are now. In Philadelphia practically every incorporated bank and trust company is an inactive depository, the city funds being distributed in proportion to the capital and surplus of each institution. Under this arrangement there is little opportunity for favoritism. The city, however, has six active depositories, each of which carries a balance of about $300,000, which is in addition to the inactive deposits allotted on the pro rata basis.

Disbursement of City Funds

The most important part of the procedure relating to the disbursement of city funds is that provided for the purposes of auditing control, already discussed in Chapter IV. This requires all disbursements to be made by the city treasurer upon the order of the city controller.

For this purpose, the "voucher-warrant-check" is used.[1] This check is prepared by the controller and contains a statement of the payee's account; it becomes an order or warrant on the treasurer when signed by the controller and an order or check on the bank in favor of the payee when signed by the treasurer. The accounting procedure outlined in Chapter V requires the controller to record his warrants on the treasurer in a register of warrants or cash disbursements, and the treasurer to record his checks on the bank in a bank ledger.

Besides this general procedure, there are certain practices that are worthy of brief comment here. An important feature in the handling of disbursements is the prompt payment of claims. The city has a good deal

[1] See above, page 135.

to gain in discharging its obligations promptly both in securing cash discounts and in promoting favorable trading relations. The controller should observe all claims on which cash discount is allowed, see that they are approved promptly and at once order their payment. Such procedure is frequently interfered with when vouchers are required to have the approval of other fiscal officers, such as the mayor, or the chairman of a council committee. In such instances, the discount period will often elapse before the necessary approvals can be secured. These approvals are usually perfunctory, and are only enforced in order to conform with outgrown laws. They mean very little from the standpoint of effective control.

In general, those claims on which cash discount is not allowed, should be paid on regular dates. Vendors then know when to expect payment and the city is looked upon with favor as a buyer. Mailing checks to payees instead of having them call at the treasurer's office is also an advantageous practice. The voucher-warrant-check forms can be designed so that they will fit into a "window" envelope and hence the labor of addressing envelopes can be avoided.

The disbursement of payroll moneys to payees is properly a function of the treasurer's office, after the payrolls have been audited by the controller. This duty can be assigned to an employee in the office, designated as "paymaster." When payment is made by check, as explained in Chapter IV, the paymaster can also prepare and sign these checks, provided a "payroll bank account" is used.[1] It should not be necessary to make any entry of the individual pay checks other than that contained on the payroll document. The numbers of the pay checks may be entered thereon, opposite the names of the respective payees.

[1] See above, page 140.

CHAPTER XI

ASSESSMENT OF PROPERTY FOR TAXATION

Under the system of taxation which prevails in the United States, the major portion of the revenues of municipalities is derived from a tax levied on the capital value of property.[1] In a well-administered city, the total amount of municipal revenue which must be derived from this source in any year is determined by the city budget; the classes of property against which the tax is to be levied, and the criteria on which the taxable valuations of individual properties are to be based, are prescribed by state law. In some states, the function of assessing property for all taxes—state, county, and municipal—is vested in the municipality; in others, it is discharged by the county or township; in still others, the city makes one assessment roll on which its own tax levy is based, while the county makes an independent valuation of all property in the county, including that located within the city, on which county and state taxes are based.

Whatever the plan followed, two complementary facts must emerge before a city can accurately levy its taxes —the aggregate assessed values of all the taxable property in the city as revealed by the assessment roll, and the amount to be raised by taxation as determined by the budget. The division of the latter figure by the former gives the tax rate. This rate, which may be expressed in terms of mills or cents on the dollar of assessed valuation, or in terms of dollars on the hundred or thou-

[1] In this chapter and the two subsequent chapters the various sources of municipal revenue are considered. The treatment is intended to be mainly from the point of view of administration.

sand dollars of assessed valuation, is then applied to the assessed values of individual properties in order to arrive at the amount of tax due from each taxpayer on the roll.

So far as the taxpayers of the municipality as a whole are concerned, it is a matter of indifference to them whether the taxable property within the city is assessed for city purposes at the full value as defined by law or at some multiple or fraction of that value. Let us assume a city in which the budget has established the sum of $1,000,000 as the amount to be raised for municipal purposes by taxes on general property, and in which the full value of all taxable property as defined by the state law is $50,000,000. Whether the aggregate of the assessed values of all the taxable property on the roll exactly equals that figure, whether it is twice as large or only one-half of it will make no difference in the total tax burden on the property owners as a group. In the first case, the tax rate will be $2.00 per hundred dollars of assessed value; in the second, $1.00; and in the third, $4.00. The tax yield which will result in applying any one of these rates to its corresponding tax base will be $1,000,000 in every case.

Effect of Inequalities in Assessment

Individual taxpayers, however, are affected by the extent to which the ratio of assessed value to full value for their own properties varies from that of the city as a whole. In the case of the city assumed above, if the aggregate assessed values constitute 50 per cent of the legal full values, and if three individuals own properties in that city which are assessed at 20 per cent, 40 per cent and 80 per cent respectively of full value, the true tax rates on their properties will vary in the same proportion. The accompanying Table I will serve to illustrate this point.

TABLE I

EFFECT ON INDIVIDUAL TAX BURDENS OF INEQUALITIES IN ASSESSMENTS

Taxpayer	*Full Value of Taxable Property as Defined by Law*	*Assessed Value of Taxable Property as Carried on Tax Rolls*	*Official Tax Rate in Dollars per $100 of A. V.*	*Amount of Tax*	*Dollars of Tax Paid per $100 of Full Value*
(1)	(2)	(3)	(4)	(5)	(6)
A	$100,000	$ 20,000	$ 4.00	$ 800	$ 0.80
B	40,000	16,000	4.00	640	1.60
C	2,500	2,000	4.00	80	3.20

The state of affairs depicted in this table in which taxpayer C pays four times as much per $100 of full value as taxpayer A does is not imaginary. It is drawn from actual experience. It can be duplicated in a number of American cities by any one who will take the pains to ascertain the facts. A number of studies have been made by the sales ratio method in cities where no adequate assessment system has as yet been developed. All of them disclose a distinct tendency on the part of assessors to value small properties at a very much higher percentage of sales prices than larger properties. This fact does not point to a deliberate intention on the part of tax officials to overburden small taxpayers. It indicates rather that the ordinary assessor, working as he not infrequently does on part time, without previous training, without system and without adequate records, can *guess* at values more closely in the case of small properties such as those he lives in, or similar to those he may himself have owned, built or sold, than he can at the value of properties of a type with which he has had no first-hand experience. It may indicate also that the owner of a large property is as a rule somewhat more alert, more aggressive and more skillful than the small owner in combating increases in assessed values based simply on guesswork. In some states, furthermore, taxpayer C

would not be entitled to relief on appeal to the board of review or to the courts. Because the law in such states requires full value assessments, and because his property is in fact assessed at less than full value, his appeal for a reduction would have to be denied, in spite of the fact that his true tax rate is four times as high as that of taxpayer A and 1.6 times as high as the true average tax rate for the municipality as a whole.

If we will now assume that the three properties owned by A, B and C are assessed uniformly at 40 per cent of full value, the effect on the tax burdens of the three taxpayers would be as shown in Table II.

TABLE II

EFFECT ON INDIVIDUAL TAX BURDENS OF ASSESSMENTS AT A UNIFORM PERCENTAGE OF FULL VALUE

Taxpayer	*Full Value of Taxable Property as Defined by Law*	*Assessed Value of Taxable Property as Carried on Tax Rolls*	*Official Tax Rate in Dollars per $100 of A. V.*	*Amount of Tax*	*Dollars of Tax Paid per $100 of Full Value*
(1)	(2)	(3)	(4)	(5)	(6)
A	$100,000	$ 40,000	$ 5.00	$ 2,000	$ 2.00
B	40,000	16,000	5.00	800	2.00
C	2,500	1,000	5.00	50	2.00

So far as city taxes alone are concerned the introduction of a constant ratio of assessed value to full value for all taxpayers at once brings about a distribution of the tax burden in compliance with the intent of the law, even though the letter of the law may have been violated by the use of a ratio other than that stipulated in the law. No matter what constant ratio may be adopted—whether it be more than full value or less—the tax burdens for the three properties indicated in Table II and the true tax rate will not change as long as full value and tax requirements do not vary. As the ratio of assessed value to full value goes up or down the official tax rate will fall or

rise reciprocally, but the last two columns in the table will remain unaffected.

Because of the fact, however, that the assessment rolls prepared as a basis for the levy of municipal taxes are also used in many states for the imposition of state and county taxes, a new problem arises. In the case assumed in Table II, the city achieved substantial equality under the law as between its own taxpayers by assessing all property at 40 per cent of its full value. If, however, a second municipality in the same state assesses the property within it at an average ratio of 20 per cent, and a third at 80 per cent, it is manifest that the apportionment of state taxes among the three cities is subject to inequalities comparable to those which occur among the three individual taxpayers under the analogous conditions assumed in Table I. This fact explains why competitive underassessments as between local assessing bodies have come about, and why it is essential that the state law provide a uniform standard of assessment for all taxing districts in the state, together with adequate administrative means for enforcing the use of the common standard.

Standards of Taxable Value

A full definition of the standard of value which the legislators had in mind is rarely, if ever, to be found in their enactments. The words "full value," "fair value," "cash value," "market value" or "fair cash market value" which are typical of the terms used in the laws have proven in practice to be somewhat empty of meaning. Judicial decisions have served to give them a certain content, but a content unfortunately which is frequently applicable to special rather than to general cases. State tax commissions in certain states have succeeded in giving the terms a more general meaning by the use of administrative regulations governing the facts to be

used as criteria of value and the methods to be employed in their application. It is difficult, however, to find anywhere an exact statement of just what the law means when it prescribes a uniform standard of valuation for all of the property taxable under the general property tax laws.

The reasons for this condition of affairs are inherent in the complexity of the problem. Many of the definitions of value even in economic literature are of little use either to the legislator or to the assessor. Some of these attempt to measure value from the psychological standpoint in terms of satisfactions, which can never be converted into dollars and cents. Others state the meaning of value in terms of price, but even these are sterile in practice unless the machinery exists for developing a current market price for all taxable objects.

In order to bring the problem into clear relief, it may be well to indicate the divergent types of property to which the definition of value contained in the general property tax law must be applicable. If, for instance, the law dealt simply with commodities such as wheat or cotton, the simple words "fair cash market value" would be ample for all purposes. Property of that type is produced for more or less immediate consumption. Practically the entire crops produced in one year change hands one or more times during the course of a year in a nation-wide, or even a world-wide, market. Quantities are measured in definite units such as bushels or pounds. Quality is stated in terms of well-defined grades. Prices in any locality on a given day are based more or less closely on the prices in the world market for the same day. In order to establish the taxable value of a given quantity of a certain grade, it is necessary only to ascertain the current local market price per unit for that particular grade as of the taxing date. The perplexities of the assessor in valuing property of this character arise

not so much because of the question of value per unit of quantity, as because of the difficulty in ascertaining the quantities and the grades to be valued.

In the case of certain other commodities which are consumed during a long period of use—such as, household furniture, for instance—new factors enter in. Changes in costs of manufacture or in fashions will tend to bring about an economic obsolescence; normal wear and tear will bring about a marked depreciation. Current habits of thought attribute a lower value to anything that is "second-hand," even when economic obsolescence and wear and tear have not yet brought about any change in absolute or relative utility. Certain types of property of this general class, on the other hand, accumulate an added value because of their antiquity even though wear and tear may have deprived them of all utility except for the special purposes of the collector. None of these factors, however, is evaluated for the benefit of the assessor in any well-established market. There are no market prices for definite units of definite grades which will aid him in establishing the fair cash market value of all taxable property of this type.

The bulk of the property which is carried on the general property tax rolls, however, is real estate, which in itself is a composite of land and of improvements affixed to land. The market for real estate is, as a rule, a narrowly restricted local market. Prices are rarely expressed in terms of units which may be applied without detailed analysis to other parcels even in the same locality. Buildings, furthermore, are influenced by the factors of obsolescence, depreciation, or even antiquity, similar to those which operate in the case of house furnishings, etc., discussed above. It must be borne in mind also that a building is relatively immovable. Even if it is newly constructed on the most modern plans, it may be practically valueless if it is not properly adapted to the uses

for which there is an effective demand on the site it occupies.

Only a comparatively small percentage of the parcels of real estate in a city will change hands within the course of a year even during boom periods, and the transfers which do take place will tend to concentrate in certain sections of the city and in certain classes of real estate. Furthermore, accidental personal and local considerations entirely alien to the broader and more fundamental factors which establish price levels in the case of wheat and cotton, for example, enter into the prices at which many of the relatively small number of transfers take place. In view of these facts it is not strange that assessors in many municipalities are merely *guessers,* or else clerks who copy slavishly the results of the guesses made by their predecessors.

During the past three decades, however, better methods have been developed in many cities. These methods are based on a clearer definition of the concept of taxable value than that found in any law, or in any single judicial decision. This definition is not always present in so many words, but is implied, rather, in the methods themselves. Since the concept has resulted in assessments which stand the test of comparison with such data on voluntary sales as are available, and has received at least tacit judicial sanction over a considerable term of years, an attempt to state it in clear-cut form may prove well worth while. It would seem to be as follows:

The taxable value of any piece of property is the probable price at which it would have been sold, had it been sold, on the taxing date at a sale between a willing buyer able but not compelled to buy, and a willing seller able but not compelled to sell, if both buyer and seller had been fully conversant with the property and with current public opinion concerning prices in general.

This definition is broad enough to cover not only the simple problem of the valuation of commodities which sell in a world market, but also the more involved one of the assessment of real estate. It can be applied in the assessment of any type of property for which a current market price can be ascertained or for which a probable market price can be deduced with reasonable accuracy. While its emergence out of administrative methods has gone far to make certain parts of the general property tax law more nearly workable than before, it is still not adequate as a basis in the valuation of all the types of property which the tax laws in some states require the assessor to value.

Types of Taxable Property to be Assessed

Speaking generally, the property taxable under the original general property tax laws, with which the municipal assessor is concerned, can be classified under nine broad heads, as follows: (1) real estate used for ordinary commercial, industrial or residential purposes; (2) real estate used by public utilities; (3) fixtures, machinery and equipment used by public utilities; (4) fixtures, machinery and equipment used by merchants and manufacturers; (5) office equipment of business and professional men; (6) stocks in trade of merchants and manufacturers; (7) household and personal effects; (8) bonds, mortgages, notes and other evidences of debt; and (9) shares of stocks in corporations.

There are still a few states which have not learned that assessors are subject not only to the law of the state but also to the more inexorable law of necessity. No practicable system has ever been devised anywhere for valuing fairly and equably and in compliance with the intent of the tax law all the groups of property included in the above classification. In some cases, difficulties arise in the valuation of the property after its

amount is known to the assessor; in other cases, the problem of valuing the property in question would be simple if the assessor could only ascertain the amount of such property in the possession of individual taxpayers; in still other cases, both the foregoing obstacles stand in his way. A further complication is introduced by the fact that the same tax laws which require impossible things of the assessor sometimes hedge him about so rigidly with restrictions as to the amount of time and money he may expend on his task that he is prohibited from discharging even the otherwise practicable portions of his task. Such laws nullify themselves quite as effectively as though they contained a proviso to the effect that "the assessor shall not be allowed to discharge the duties imposed on him by other provisions of this act."

For these reasons, the general property tax in the states where it still exists in its original all inclusive form is a legal fiction and not a fact. Both ethical and administrative considerations, however, have made themselves felt during the past few years, and there are few states where the more obviously unjust and unworkable features of the old laws have not been modified. Evidences of ownership, such as shares of stock in corporations, are no longer taxable in most states provided the tangible property to which they refer is taxed. Evidences of indebtedness, such as bonds and mortgages, are frequently excluded from the scope of the general property tax law, provided they have been properly registered for taxation under a special property tax law. Because of the difficulties of listing and valuing household effects, there has for some years past been a growing tendency toward granting exemptions on this class of property up to a certain sum—exemptions which for administrative reasons have sometimes been interpreted by assessors as meaning total exemption except in the case of unusually valuable furnishings. In some states, the movement has

progressed to the point where stocks in trade, fixtures, machinery and equipment of incorporated merchants and manufacturers are no longer required to be entered on the general property roll, a tax administered and distributed by the state being imposed on gross or net corporate income in lieu of the local tax on property of this kind. In a number of states, furthermore, certain of the types of real estate and of personal property used by public utilities operating in more than one taxing district have been removed from the general property tax rolls, and are taxed by special methods under the direct supervision of state tax commissions.

In short, in the states which have given closest study to their tax laws, legislative requirements and administrative accomplishments have tended to draw into closer harmony with one another. On the one hand, the law makers have shown a tendency to eliminate one after another many of their more impossible demands on the assessor. On the other, the assessors have developed methods for the discharge of most of their remaining duties in compliance with the intent of the law.

Essentials of Assessment Procedure

The assessment procedure proper involves six steps: (1) the collection of basic information as to the ownership of all taxable property, its quantity, character and value; (2) the systematic recording of that information; (3) the analysis of the information; (4) the equitable application of the results of the analysis to each of the individual taxable properties; (5) the compilation of a comprehensive assessment roll; and (6) the summation of that roll. The successive steps in this procedure are almost without exception included among the duties of assessing officials by the express or implied provisions of the tax laws of the several states.

The further duties of extending the tax roll (that is,

of multiplying the taxable values of individual properties by the tax rate) and of making out tax bills are included among the functions of assessing offices in many jurisdictions. There are three excellent reasons for this. In the first place, where the fiscal calendar has been well arranged, extension and billing follow immediately upon the conclusion of the valuation work. In the second place, the assessing office is frequently the only bureau or division in the department of finance which has a well trained and full time clerical force large enough to complete the work with precision and dispatch. In the third place, the successive steps in the compilation and extension of the tax rolls can be carried on simultaneously with the parallel steps in the preparation of the tax bills. In fact, certain cities such as Buffalo, for instance, which are fortunate in not being hampered by restrictive legislation, have succeeded in combining these processes into one by the use of mechanical appliances and properly designed stationery. In short, they type their tax rolls and their tax bills at one operation.

Only the first four of the steps outlined above require detailed treatment here. The remaining steps, including those which are not properly part of the valuation process, have already been dealt with briefly in the section on general collection procedure in Chapter X.[1]

The Gathering of Information

In practically all states, it was assumed originally that the best source of information regarding the ownership, character, amount and value of taxable property was the owner himself. In some states, a sworn list filed by the taxpayer is still the chief reliance of the assessor under the terms of the law. Unfortunately, experience has proved that many owners know neither the exact amount of taxable property they own nor its value. When they

[1] See above, pages 289 ff.

do happen to have exact information, they are not infrequently rather reluctant to impart that information to the assessor.

The legislators who placed their reliance on sworn returns overlooked the fact that there are public records available which contain a great deal of reliable information on the most important single kind of taxable property, namely, real estate. Even in certain jurisdictions where the submission of sworn property lists by the taxpayers is still required by law, the municipalities which have made the greatest progress toward complete, accurate and equable assessments have come to rely for their information on the public records, and on certain private sources of information which are comparatively reliable and easy of access. As a result, it has been proved time and again to the satisfaction of taxpayers who had felt themselves aggrieved that the assessors had more accurate information about the dimensions and value of the properties in question than the owners themselves had.

The Recording of Information

The collection of information by the assessors, however, is not alone sufficient to insure an adequate assessment of a city. There are cities in this country in which the assessors, under provisions of the state law, receive a constant stream of valuable information from offices of public record, but in which the material is allowed to collect dust without ever being put to its full use because of the lack of an adequate system of recording it. The very volume of the information relative to ownership, locations, dimensions, and character of improvement which is obtainable relative to the taxable property of the city, and the great mass of direct and indirect indices of value, make it necessary to provide records in which every pertinent fact is entered in logical and readily accessible order.

Compilation of Records

It is one thing to know where to find the requisite information concerning taxable property and the type of records best adapted to recording it. It is quite another thing, however, actually to compile the records, and at the same time to carry on the great volume of routine work involved in the preparation of the annual tax rolls. The task requires an industrious and capable office force working under competent direction.

Until recently, it had been almost a universal practice among cities in the northeastern part of the country to rely on the regular staffs of the assessing offices, strengthened in some cases by committees of private citizens, in compiling the new forms of records. In the middle west, southwest and Pacific coast regions on the other hand, the task of compilation has frequently been assumed on contract by firms or individuals specializing in the installation of assessment systems. Several concerns of this type have done excellent work in preparing the basic records necessary to the successful conduct of an assessor's office at costs in some cases below $1.00 per parcel of real property.

Both systems have had their advocates and opponents. Those who favor the contract system point out that cities which rely solely on their own assessing forces usually require several years to complete the installation of the new system, and that the resultant records do not in all cases embody the latest and best practices because of the limited experience of the local assessors. Those who favor having the local officials do the work, while they admit that complete and accurate records may sometimes be prepared more expeditiously by men specializing in the work, point out that after the contractors have finished their work, the new system is often allowed to fall into disuse, because its administration and the mainte-

nance of the records devolve on men not trained in its use. Both of these arguments, however, are only partly true; there are many notable exceptions. Each of the two systems has resulted not only in very good records capably administered but also in very poor records badly administered. In short, good results can be achieved under either plan by competent men. The choice of method in any case must be determined after a careful analysis of all the circumstances affecting the case in question.

Analysis of Information

Even after all the available information relative to the location, dimensions and character of the taxable property has been collected and systematically recorded, and after the direct and indirect indices to value have been compiled, the work of assessment proper may be said only to have begun. So far as real estate is concerned, it is rare that current sales and rental values will be available for as many as 15 per cent of the taxable parcels; and in urban communities, it will seldom happen that any one of those parcels is exactly similar in every characteristic affecting values to any one of the remaining 85 per cent of the parcels.

In order to reduce the exact nature of the assessor's problem to its simplest form, let us assume that he is confronted by the task of placing a value on one hundred lots of wheat and that he has relatively accurate information as to the quantity and the grade of each of those lots, but sales values on only fifteen. He would reduce his data concerning quantity, quality and value on the fifteen lots to values per bushel of certain grades, and would apply the results to the quantities and appropriate grades of the remaining eighty-five lots. That in effect is what the assessor is now called on to do with regard to the real estate in his district; except for the facts that

many of his parcels of real estate are in themselves composites of two distinct types of property—land, and improvements on land—and that the economic bases for the values of these two types are markedly dissimilar. Nevertheless, he must find some method of separating sales and rental values into land values and improvement values, and then of reducing each of these to suitable unit values for use in assessing the properties for which no direct indices are available.

Sources of Information for Assessors

The sources of information open to the assessor and the character of the information he may reasonably expect to draw from them are indicated below.

County Recorder's Office

The instruments filed in the office of the county recorder [1] such as deeds, mortgages, leases, appraisals of estates, acts of trustees, of guardians and of probate courts, maps and plats of individual properties and subdivisions, are public property. The assessor has full and free access to them. From these documents he can obtain the names of grantors and grantees, lessors and lessees, mortgagors and mortgagees, and other authentic information as to the owners of record of all real estate within his jurisdiction; from the metes and bounds or other description of the properties in the several types of recorded instruments he can obtain reliable facts concerning the area, location and dimensions of parcels of land, and in some cases he can supplement these facts by resort to the maps and plats on file in the office; in a limited number of cases, the same documents will give him either complete or partial information relative to the

[1] In some states the official charged with the functions of recording and filing documents of this type is called the county register of deeds, the county clerk, the parish registrar of conveyances, etc.

location, dimensions, type of construction and use of the buildings or other improvements on the land.

As regards current sales prices, the information obtainable from recorded instruments is rarely complete, except in the case of transfers of property made under sections of the law which require the true consideration to be stated in the deed. Unfortunately, however, the factors governing the establishment of the prices of properties conveyed in this manner, are rarely those which operate in a free market. Discretion must be exercised therefore in utilizing information on values obtained from instruments of this type.

The amounts stipulated in leases and mortgages can frequently be taken as correct statements of the sums involved in the transaction. Properly analyzed, the figures obtainable from this source constitute very significant indices of current sales prices. Under the terms of the Federal Revenue Act, furthermore, a federal revenue stamp of 50 cents for every $500 in equity in real estate involved in the transfer, is required to be affixed to every deed before it can be recorded.[1] If, for instance, the grantor retains a purchase money mortgage, stamps are required to be affixed sufficient to cover not only the cash involved in the transaction but also the amount of the purchase money mortgage. If, however, the property is sold subject to a prior mortgage, the stamps required cover only the consideration paid for the equity in excess of such mortgage. Since mortgages are also matters of public record, the price fixed for the property as a whole between the buyer and seller may be deduced by combining the information from the two sources.

In some jurisdictions, the information regarding true considerations which may be derived from an analysis of revenue stamps has been found to be reliable when a

[1] Since this was written, this provision of the Federal Revenue Act has been repealed.

large enough number of transfers are available. In others, even a cursory examination reveals wide discrepancies between known true considerations and the amounts for which revenue stamps are affixed. In every taxing district, the assessor will have to determine by an analysis of as large a number of cases as possible whether revenue stamps afford a safe guide for his purposes or not.

In short, the assessor can find in the records of the county recorder a great deal of pertinent and valuable information for use in the listing and valuation of real estate. The question still remains as to how he can best avail himself of this information.

In the state of New Jersey, for example, the county clerk or register of deeds is required to furnish the assessor with an abstract of every deed or other instrument of transfer within one week after he records it, unless the deed contains, when it is presented for recording, a certificate from the assessor to the effect that it has already been submitted to him for his information. One county in that state has supplemented the provisions of the law in this respect by an agreement, whereby a large abstract company, in return for the use of office space furnished by the register of deeds, transmits to the taxing officials a copy of every abstract it makes for its own files including those for mortgages, leases and all other instruments affecting the title to, or bearing on the value of, any real estate in the county.

In the city of New Orleans, the parish registrar of conveyances transmits to the assessors a carbon copy of the entry he makes in his books of record concerning every conveyance of real estate recorded in his office. In one county in Massachusetts, eighteen of the twenty assessment districts rely on the services of a private abstractor who specializes in information for assessors, and who transmits to the assessing officials periodically abstracts

of all instruments affecting real estate which are recorded. The costs to the several assessing districts are on a prearranged fee basis, and are extremely modest. In some jurisdictions, the assessing officials send their own employees from time to time to make the required abstracts; in others, a coöperative agreement is entered into whereby the recording official voluntarily sends complete abstracts of the requisite information to the assessors without charge to them, and with little or no additional cost to his own office. This latter arrangement is possible only in cases where the recording offices are run in a businesslike manner. In counties where the recording officials must obtain their remuneration and the costs of maintaining the records out of the fees they collect, and in which they consider the public records almost as their personal property, no plan of the last named type, of course, is feasible.

Other Public Sources of Information

The office of the county recorder is, however, not the only repository of public records of value to the assessor. Every well-administered city has accumulated in the course of routine administration a large amount of accurate and important information relative to real estate, and no city is debarred from providing such sources.

The office of the city engineer, for instance, usually has maps which were prepared in connection with paving, sewer and water projects. In many cases, they cover practically the entire city. At times, maps of this character will yield information relative solely to block outlines; at others, they contain information at least as to the ownership and frontage of parcels abutting on the streets. Not infrequently, they will provide complete metes and bounds for all privately owned properties contiguous to streets which the city either has improved, or intends to improve, in any manner. The maps con-

taining this information may have been drawn to a wide variety of scales, but by the use of modern methods of photographic reproduction they can be reduced to a common scale and compiled into a comprehensive and reasonably accurate map of the city at comparatively small expense.

The building inspector's office also is—or can be made—a mine of information for the assessor. When a city's police control over private building operations is abreast of the best modern practice, every application for a permit to build, to erect, to enlarge, to remodel, to demolish, or to remove any building must be accompanied for the purposes of police supervision by a great deal of the very information which the assessor needs for his own purposes. The ownership, location and dimensions of the lot, the dimensions, type of construction, character and estimated cost of the proposed building must appear either in the application or in the plans and specifications attached to it. After the permit is issued, furthermore, a strict compliance with its terms is enforced by frequent inspections as the work progresses. With adequate cooperation from the police department, the building inspector may feel reasonably certain that no building can be erected or altered anywhere in the city without his knowledge.

Because of the fact that complete records have not been kept in many building inspectors' offices for more than a few years, the assessor can obtain from those records the requisite information only for those buildings which are now being erected or remodelled, or which have been recently erected. Fortunately, there are other sources of information on which he can draw in the case of older buildings. These will be suggested below.

In order to supplement the information relative to the removal or demolition of buildings, the assessor can draw on the reports of the fire department for informa-

tion on all buildings destroyed or damaged by fire. In some cities, the regular reports of this department endeavor to present information relative to insurance policies carried on the buildings affected and to the amount of the loss incurred.

Private Sources of Information

In addition to the above-mentioned public sources of information, there are many private sources which are, or can be made, available to the assessing office.

Several companies in this country specialize in the preparation and sale of real estate and insurance atlases. Maps of this type are available for the closely built sections of all the more important cities in the country and for the business and industrial sections, at least, of several thousand of the smaller cities, villages and towns. They are in daily use by real estate and insurance agents throughout the country, and are looked on as valuable supplementary records in the great majority of well-administered assessing offices.

Because of the fact that the maps are designed primarily for use in connection with the business of insuring buildings against fire, the information which they present emphasizes factors which influence internal risks, external exposure and the facilities provided by the city for the suppression of fires. Certain of the factors presented are essential in the valuation of buildings—the ground plan drawn to scale, the number of stories, the type of construction and the materials used, and the use to which the building is put.

Maps of this type may be obtained from the publishers as a rule on the payment of a flat sum for the atlases and of periodic service charges for the corrections and additions which are made from time to time by the publishers, as changes in existing structures take place.

The amount of reliable information which can be gath-

ered by the assessors from other private sources will depend in large part on the tact and ability of these officials. In one of the large and well-assessed cities of the country, the equalization board has succeeded in obtaining from grantors, grantees or agents affidavits relative to the true considerations involved in 40 per cent of all the conveyances of real estate in the city. This information is held in strict confidence and is used only in the equalization of assessments. In other cities, assessors have succeeded in collecting from agents, owners and tenants many important indices to taxable values which are not matters of public record; such as amounts covered by fire insurance policies and rentals. In practically all well-assessed cities, the real estate pages and the advertising sections of newspapers and periodicals are scanned for information with a bearing on values, and complete files of newspaper clippings on bid and asked prices for sale or rental are maintained.

A few assessors, furthermore, have been successful in utilizing in their assessment procedure the accumulated knowledge and the hearty coöperation of real estate boards, civic associations and neighborhood groups. Others have made complete failures in their attempts to harness public opinion in this manner. Success along these lines would seem to depend, in part, on the character of the community; in part, also on the ability of an assessing staff to prevent group or neighborhood opinion from being dominated by class interest or by the volubility of forceful but biased individuals.

Systems of Records

Methods of recording information relative to taxable property are no doubt as old as tax systems themselves. The Domesday Book of England, prepared in the reign of William the Conqueror, and the older cadasters used in continental Europe, are examples of the earlier forms

of tax records. Their lineal descendants are to be found today in many assessment districts in this country where the chief source of information used in the preparation of a tax roll is the roll which had been prepared for the previous year, which in turn had been copied almost verbatim from the roll preceding that, and so on. The older records of this type had at least one advantage over their present day successors. Because they were prepared once and for all, they were not subject to the progressive deterioration due to cumulative omissions and errors in copying which alone serve to make each successive tax roll in some districts in the United States more incomplete and inaccurate than its predecessors.

Manifestly, in a social organization so fluid as that of the present, changes in the ownership, dimensions, character and value of parcels of taxable property are so frequent that any type of record based on the old cadastral form must be quite inadequate because of its rigidity if for no other reason. In some cities in this country which earliest developed comprehensive assessment systems—notably in New York City and in Newark, New Jersey—modifications of the older system of records are still in use. They consist of so-called field books, which are similar in form to the old tax roll type of records, but which contain additional columns for brief descriptions of taxable parcels by means of symbols and for changes in value from year to year. In both cities, however, these field books have come to be mere summary records, supported in detail by voluminous supplementary records.

The newer record systems frankly face the impossibility of entering all the relevant information concerning taxable properties on one type of form. Separate records are maintained for land, for improvements on land and for personalty. In the best systems, the records for certain kinds of property are further subdivided

so as to separate information relative to unit values from that dealing with dimensions. By this means, every category of comparable facts is brought together on appropriate forms designed to facilitate not only the recording but also the comparison of the individual items in that category. A system of indexing based on the location of the property instead of on the name of the owner makes it possible to assemble quickly all the available information concerning any given property. In short, the modern record systems aim at ease in making comparisons, and at completeness, accessibility and flexibility.

Block and Lot Maps

The obvious form of land record is a map. In some jurisdictions, it is called a tax map, in others, a block and lot map. A few municipalities have attempted to combine information on land, improvements and ownership on one map. Because of the fact that a map covering the entire city is an expensive piece of equipment, because the inclusion of building data and names of owners on the map introduces an enormous amount of detail which is subject to frequent change and requires constant correction in order to keep the map up to date, the most widely accepted opinion now seems to be that the land map should be used solely for the purpose of indicating the location and dimensions of land holdings. Such changes in lot dimensions as occur from time to time can be indicated without resort to erasures by the devices with which every draftsman is familiar. In the city of Newark, New Jersey, for instance, tax maps prepared fifty years ago are still in use. They not only record accurately the exact dimensions of every parcel of land included on them, but they present a history, since their preparation, of every change in dimensions of individual holdings due to the consolidation or subdivision of the original parcels. In only a few rapidly changing sections

of the city has it been found necessary in the interests of clarity to transfer the data on present dimensions to new plates.[1]

The scale to be adopted for maps of this kind depends on the use to which the land is put. In developed urban districts, the most convenient scales have been found to be forty, fifty or sixty feet to the inch. Manifestly, it is impracticable to prepare a map of any ordinary city drawn to such a scale all in one sheet. Therefore, the map is broken up into plates of convenient size. In many of the earlier maps, each plate contains one block, and in some cases the outlines of the nearer lying portions of all neighboring blocks. In a section of the city laid out on the usual gridiron design, this plan entails the necessity of indicating on the plate for each block, a portion of the detail for each of the eight neighboring blocks. In order to minimize the labor of drafting involved in these overlaps, there has been a growing tendency in the maps of more recent preparation, to include a group of complete blocks on each plate either with or without overlaps of neighboring groups. Such a step involves, of course, either a reduction in scale or an increase in the size of the plate. The former alternative, in developed urban regions, is an extremely undesirable one; the latter, if carried to extremes, will result in plates of unwieldy size.

The writer has encountered plates in use ranging from 12¼ by 8½ inches in Fort Worth, Texas, to 24 by 36 inches, which is the size prescribed for all new tax maps in New Jersey by the state board of taxes and assessment. The former plate allows for a one-inch binding margin along one of the long sides; the latter makes

[1] See the accompanying cut, Figure 19, of sections of the Newark tax map. The original of this cut is drawn to a scale of fifty feet to the inch and has been in daily use for a number of years. Note the manner in which corrections have been made in lot boundaries and dimensions without resort to erasures.

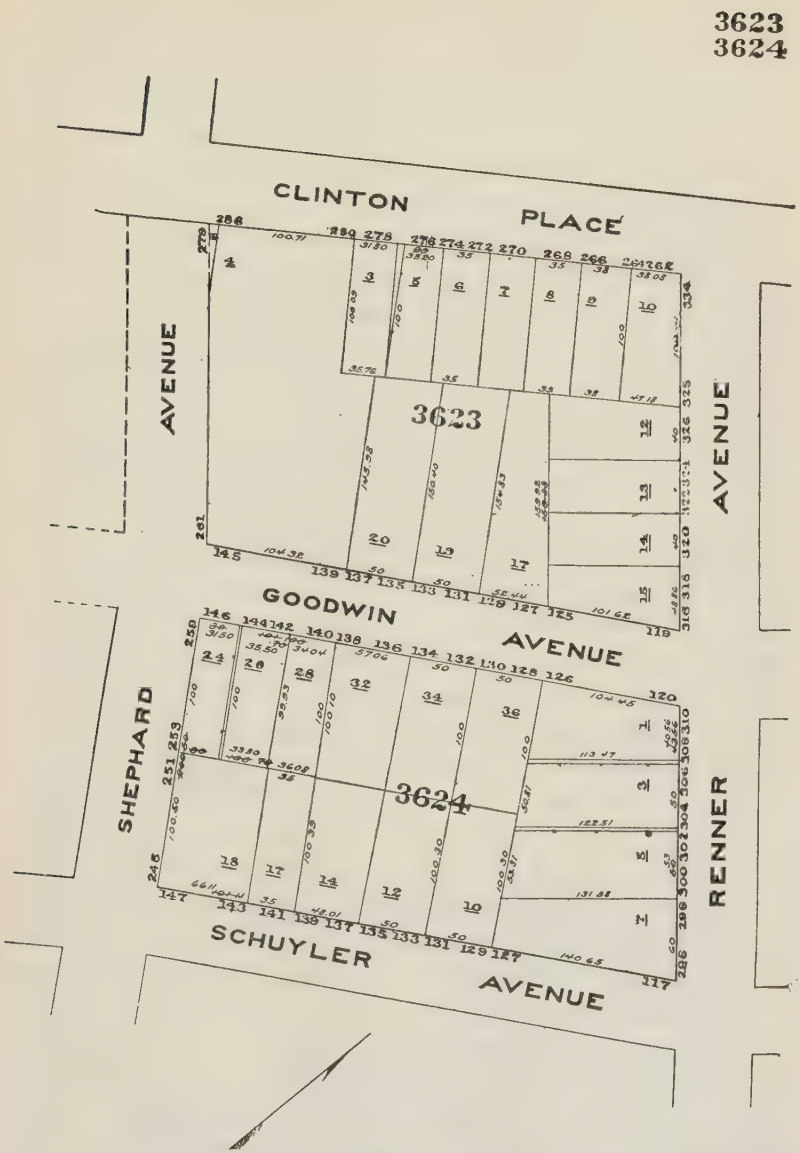


FIGURE 19. Reproduction of Page from Block and Lot Map, Newark, N. J.

(Scale greatly reduced. Street numbers appear within street lines.)

provision for a three-inch binding margin along one of the short sides and an inch margin along the other three sides. These probably represent the extreme limits of usable tax maps, and a more convenient size for all practicable purposes will no doubt be found somewhere between these two sizes. The important considerations to be borne in mind in selecting a proper size are these: each plate must be large enough to provide space for all pertinent matter drawn to a readily legible scale; it must be small enough to permit of easy handling.

The matter which appears on all tax maps is the following: the outline of the block and of each lot within the block drawn to scale; figures sufficient to indicate the length in feet and fractions of feet of each line bounding any lot, and in cases of extremely irregular parcels, the bearing of the lines; an identifying number for the block itself and for each lot within the block; and the names of the streets bounding the block. In addition, some tax maps also indicate street widths, the street numbers assigned to lots, and water courses or other unusual topographical features.

No tax maps, so far as the writer knows, have as yet attempted to indicate contour intervals, chiefly because of the expense of obtaining the necessary topographical data, but the need for such information has been clearly recognized both in Yonkers, New York, and in Cincinnati, Ohio. Undoubtedly, the next step in the development of tax maps, at least in cities occupying a broken terrain, will be the inclusion of contour lines at intervals of five feet or less.

A few tax maps have attempted also to indicate the kind and type of public improvements and public utilities which occur in the regions covered by the maps. This information is extremely important, but the frequent changes in paving and other public improvements necessitate corresponding changes in the maps. In order to

avoid the expense of preparing new plates in regions where a change in the type of street paving for instance would make it necessary, many assessors prefer to record their information of this nature on supplementary forms, which are described below.

In the main, as the reader has observed, the requirements of a tax map are substantially the same as those of any good map used by real estate men, or other private individuals who are directly concerned with land holdings. The one distinctive feature of the best tax maps is the system of numbering for blocks and lots, and even that feature is merely an extension of an idea which has long been used in private business. In the best systems, every block in the city is given a number, and all the lots in each block are numbered consecutively beginning with one, number one always being on a certain corner of the block. By this means, the designation lot 14, block 2536, can refer to only one parcel of land in the city; and when the state law permits, that term becomes an adequate legal description of the property for the levy of taxes, for the rendition of tax bills, for the making of tax searches and for tax sales. The adoption of a system of block and lot numbers, furthermore, provides a basis for indexing all assessment and tax data, not only in the assessing office, but in the collecting office as well.

With a little care, the system of numbering can be made flexible enough to provide both for increases in the number of blocks in the city, and for the subdivision of lots within a block. In the city of Yonkers, for instance, a thousand block numbers are assigned to each of the six assessment districts of the city, the numbers in the first district ranging from 1000 to 1999; in the second, from 2000 to 2999 and so on. Under present conditions there are surplus numbers in each district, but those surplus numbers do not all occur at the end of the series. If a large undeveloped tract which may later be cut by new

streets occurs within a district, sufficient numbers are allotted to that tract to provide each probable new block with its proper serial number in geographical order. Similarly, if there are large tracts within a block in a region where the normal lot has a frontage of 25 feet, one lot number is set aside for each normal lot frontage even though its use may not be required until the further subdivision of the parcel into normal lots takes place. Under this plan, if the first lot in the block had a frontage of 125 feet, let us say, the next adjoining lot would be given not the number two but the number six. If the twenty-five feet in lot 1 which lie nearest lot 6 should be sold off to a new owner, that new lot would be given the number 5, and so on. In theory, the surplus numbers will exactly suffice for future needs.

Many assessors, on the other hand, object to any system which leaves blanks in either the block or lot number series, on the ground that an unbroken series from one end of the city to the other gives them a better check against omitted assessments. They prefer, in case block 1960, for instance, is cut into three blocks, let us say, to designate the newly created blocks by subscripts as 1960-a, 1960-b, and 1960-c. Both plans have their advantages and their disadvantages. The important thing to keep in mind is that there should be a definite relationship between the location of the parcel and the numbers assigned to it, so that block 2943, for instance, will not occur on the map sandwiched in between blocks 105 and 106, nor lot 14 between lots 5 and 6.

The purpose of the binding margins on the Fort Worth and New Jersey plates referred to above is, of course, to admit of binding them in book form. A complete tax map of an ordinary city, when drawn to the scale and on plates of the size above indicated will cover a number of sheets ranging into the hundreds and in some cases into the thousands. For ease and convenience of access,

it is essential that they be kept in some logical sequence. For this purpose, each plate is assigned a number, and bears on the proper margin the number of the plate on which neighboring areas are to be found. They are then bound into volumes, each volume containing in convenient geographical order the plates covering some specified section of the city. An index map bound into each volume is a convenient aid to the quick location of any parcel. The earlier plan was to bind the maps in permanent volumes. The use of loose leaf binders is now becoming more prevalent, and facilitates not only the use of the individual plates, but also their replacement by revised plates when necessary.

The preparation of tax maps of this type requires not only time and money but also brains and energy. In some cities the maps have been prepared in the office of the city engineer; in others, by men from the city engineer's office who were assigned temporarily to work under the assessor; in still others, by a surveyor's division organized in the bureau of assessments. A number of cities, on the other hand, have had the maps prepared on contract by firms which specialize in making tax maps. In rare instances, the costs of these maps have run as high as five or six thousand dollars per square mile, because they were based on resurveys and abstracts. In most cities, however, the maps and plans which have accumulated in the files of the city incident to street and sewer construction and the installation of water mains, supplemented by the information which can be obtained from county records, and private maps which are already in existence, make it possible to prepare reasonably accurate tax maps without resort to much surveying or abstracting. The city of Yonkers, for instance, in 1921 prepared a new master map for its entire area of approximately twenty square miles, together with eighteen complete sets of duplicates for use by city,

county and state departments, at an expense of about $1,000 per square mile. Of the total cost for the city as a whole, only about $500 went for actual surveys. Drafting costs were held to a minimum by resort to a method of photographic reproduction, which reduced existing maps of whatever scale to a common scale, and by the use of templates for numbering.

Once the map has been prepared, however, the work has only begun. In our modern cities, land ownership is in a state of constant flux, and it becomes necessary to work on the maps constantly so as to keep them abreast of the changes in lot dimensions. In well regulated offices, the information obtained from offices of public record by the methods already described above is sent first to the division in charge of the maps. If the conveyance involves a consolidation of two lots into one ownership or the subdivision of a tract, the necessary changes are at once indicated on the tax map. In case there is a discrepancy between the dimensions indicated on the conveyance and those shown on the map, steps are taken by conference with the interested parties, or if need be by actual surveys, to reconcile the differences in dimensions.

In some offices, furthermore, it is the duty of the surveying division to make the necessary corrections on the records of ownerships maintained by other divisions in the office. In this manner, when the taxing date arrives, every square foot of land in the city is properly accounted for and the tax can be levied against it, in compliance with the law. In the city of Newark, furthermore, the abstracts of conveyances have been filed for a number of years past under the corresponding block and lot number and now constitute a set of records on all the land in the city which is as accurate, as complete and as readily accessible as that maintained by many private abstracting companies.

Building Records

Early in the development of assessment records several cities resorted to the plan of entering data concerning buildings on maps—sometimes direct on the block and lot maps already described; sometimes on supplementary maps. The frequent changes in buildings have made this system of records both unsatisfactory and expensive to maintain. In the case of the commercially prepared insurance atlases, which succeed in presenting by the use of symbols and colors a large amount of pertinent information concerning buildings, the cost of printing new maps or pasters for old maps in order to keep abreast of changes can be distributed over the relatively large number of clients who use the atlas. In the case of a set of building maps maintained by an assessing office on the other hand, all of the very considerable expense of correcting plates must be borne by that office alone. Because of this fact, only a few cities have continued for long to utilize this method of recording their information. Even those which still rely on building maps have cut down the detail contained on them to a minimum and in consequence they have sometimes been compelled to use supplementary filing systems in order to record all the necessary information regarding buildings.

As a result of this situation, a number of cities have come to rely solely on a card or loose-leaf system of filing data on buildings, a separate sheet or card being used for every parcel of real estate. The forms in use which the writer has seen range in size from 4 by 8 inches to 16 by 22 inches. In contents, they range from rudimentary information such as that contained in the early field books already described, to a voluminous record of minor details which are in many cases difficult to obtain as well as relatively unimportant from the standpoint of the probable sales value.

Because of the flexibility and economy of this type of record, the cards which were designed originally merely as a record of the structural details of the building itself, have come to be used as a running record for a series of years of the entire property and of the changes in its ownership and value. The city of Buffalo deserves credit for having developed the latent possibilities in this type of record, and the form developed there—size 9¼ by 12 inches—has been adopted for use, sometimes with minor changes, in a number of other cities.[1]

The best forms in use today provide space for the following information: the name and address of the owner; the block and lot number and the dimensions of the lot; the position of the lot with reference to intersecting streets, to alleys, and to the street grade; the size, type of construction, use and ground plan of the building; its date of construction, if ascertainable; the number of rooms of various types on each floor; the public improvements and public utilities which are available to the property; and—if the city is zoned—the height, area and use zones in which the property lies. Furthermore, in order to reduce routine clerical labor to a minimum, the forms are designed to permit a complete description of the architectural and structural features of the building by means of check marks placed opposite the proper items on columnar lists of such features; to facilitate the insertion of a ground plan drawn to scale by means of a cross sectioned space provided for the purpose; and to obviate the labor of annually recopying all cards by the provision of spaces for the insertion of information relative to changes in ownership, and in unit or total values for land and building. The back of the form is used for the entry of supporting data on values: data on sales,

[1] See the accompanying cut of a Buffalo building sheet, Figure 20. The photograph of the house does not appear on the original. It is run as an inset here for the purpose of illustrating the completeness with which the entries on the chart describe the building.

1915 TAXING DISTRICT No. 5 PART 1 PAGE 13.

DESCRIPTION OF PROPERTY

HOUSE NO.	Assessors' Maps and Survey: District	Part	Page	NAME OF STREET	Side of Street	DISTANCE FROM WHAT STREET: Feet	Course	STREET	Feet Front	DEPTH: Feet	Course	Line	Bldg. cost $7500, Parcel sold in 1921 for $10250.
1306	5	1	9	GLENWOOD AVE.	N	170	W	FILLMORE AVE	35	105			

OWNER Mildred Greenberg

ADDRESS 1306 Glenwood Ave.

Constructed ~~or Moved~~ on Lot in 1915 — Occupied ✓ Vacant Rent

Remodeled or Repaired in — Permit No.

ASSESSED

Unit value of Land per foot	$25.00	
Value of Land		$805
Value of Improvements		2400 Tentative
Total Valuation		

1916 Unit	$25	Land $805	Improvements	$2600
1917	25	805		4595
1918-1920	40	1230		4595
1921-1923	50	1610		5660
1924	50	1610		6260
1925	60	1930		6260
1926	75	2420		7455

1926 - Base Rate, $32

BUILDING CODE

BODY OF BLDG.	3330
BASEMENT	720
LAUNDRY	50
ROOF	
DORMERS	30
BAYS	150
HEATING	300
BATHS	100
ELEC. LIGHT	200
VERANDAS	756
H. W. FLOORS	480
" TRIM	120
" PANELLING	
" BEAMED CEIL.	
TILE FLOOR	60
" TRIM	
" VESTIBULES	25
BLT-IN SIDBDS.	
" CABINETS	
FIREPLACES	150
EXTRA ROOMS	30
GARAGE	360
TOTAL	7455
% Depreciation	
PRESENT VALUE	7455

BUILDING IN CLASS

CLASS	CONSTRUCTION	C. S. TRIM	PLUMBING	MISCELLANEOUS
Single Detg.	Frame ✓	Wood ✓	Open ✓	Sideboard
Double " ✓	Brick	Galv. Iron	Old Style	Refrigerator
Duplex "	Tile	Stone	City Water ✓	Power Elevator
Bungalow	Blocks	Terra Cotta	Well "	Hand "
Flat Building	Re-Conc.	Concrete	Sewer ✓	Sprinklers
Apartment	Mill		Cesspool	Fire Escapes
Apartment Ho	Steel Frame	HEATING	LIGHT	Skylight
Store Bldg.	EXTERIOR	Stove	Gas	Com.
Office "	Siding	2 Furnace ✓	Electric ✓	Glass { Plate ½ Front Door
Hotel "	Shingles ✓	Hot Water	REPAIR	Lead
Shop "	Stucco	Steam	Good ✓	
Factory "	Com. Brick	Cen. Sta.	Fair	
Church "	Press "	2 Fireplace ✓	Bad	
Barn "	Paper			
Garage "	ROOF			
Warehouse	Shingle ✓			
FOUNDATION	Slate			
Stone ✓	Tile			
Concrete	Gravel			
Brick	Prepared			
Posts	Board			
BASEMENT	Iron			
	Asbestos			
Full ✓	Flat			
Half	Hip			
Quarry	Gable ✓			
Cement fl. ✓	Gambrel			
Laundry ✓	Dormers ✓			

ROOMS	Bsmt	STORIES 1	2	3	up	Attic
Living Rooms		3	3	/		Unfinished
Bed "		3	3			
Bath "		/	/			
Toilet "		/	/			
Office "						
Storage "						
Stores						
Unfinished						
Hardwood Fin.		2	2			
Paint "		5	5			
Hardwood Fl.		6	6			
Tile Wainscot Floors						
" Bath "						

Examined by District Assessor

Complaint No. — Filed

Reviewed — 191 — Adjusted

Approved by the Board of Assrs.

REMARKS ON REVERSE SIDE OF SHEET

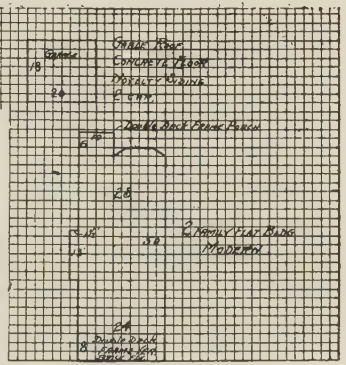


FIGURE 20. Reproduction of Building Record Sheet, Buffalo, N. Y. (Inset is photograph of building described on sheet.)

mortgages, leases, rentals, fire insurance policies, bid and asked prices, contract costs of construction, or whatever indices of value may be available.

In some cities, information concerning both main and outbuildings is entered on one form. In others, a separate form is provided for the structural detail of each of the buildings on one land parcel, that for outbuildings being entered on sheets of a different color from that used for the main buildings. The information relative to the taxable value of the outbuildings in that case is carried over into the summary of assessed values, space for which is provided on the main building form.

The information relative to ownership is based directly on the county records; that relative to the location and dimensions of land is taken from the tax maps already described. The data relative to buildings must necessarily be derived from a variety of sources. For all new buildings, the best available source, of course, is the building inspector's office. For older buildings, the basic information, at least, may be obtained from the insurance atlases above referred to. In some instances, the information relative to all buildings has been obtained by direct measurement and examination of the buildings themselves. Even where the right of the assessors to enter on property for the purpose of examination is clearly established by statute and supported by legal decisions—a condition which does not prevail everywhere —such an operation must be undertaken with tact and consideration, because public opinion can easily be aroused against it. A number of cities, however, have accomplished this rather difficult feat.

The experience of the assessor of Calumet township, Indiana, in which the city of Gary is located, may well be cited in this connection. He reports, as quoted on page 94 in the proceedings for 1922 of the state board of tax commissioners and county assessors of Indiana, that "two

men measured and figured in one hundred working days over 9000 buildings, the value of which was close to $30,000,000. It looked like an impossible job, but it was not. Of course it was a large undertaking, for it required not only the work of actually measuring and determining the status of the different buildings but the figuring and placing of valuations on the plat books."

After the forms have been filled out for each individual property in the city, they are filed, not in alphabetical order according to the names of the owners, as was the practice in most of the older assessment systems, but in geographical order. Some cities still cling to a plan of filing streets in alphabetical order and the properties fronting on those streets in geographical order based on street numbers. Where, however, block and lot numbers have been legalized for use in the description of taxable property on the rolls, the forms are generally filed in geographical order based solely on block and lot numbers. Either system is better than the old purely alphabetical system of filing, but the block and lot system is preferable because it brings all adjoining properties into close proximity in the files, and facilitates the comparison of the properties which are subject to comparable factors of value.

Personal Property Records

As has previously been indicated, there are few central sources of information available relative to the ownership or value of personal property.

In states where mortgages are still taxable under the general property tax laws, the assessor can of course learn something concerning the amounts outstanding against real estate in his taxing district by resort to the county recorder's files relative to mortgages recorded, assigned, reduced or cancelled. Under the laws in practically all states in that group, however, he must still as-

sure himself, before he can safely include the mortgages outstanding on his rolls, that the mortgagees are domiciled on the taxing date in the municipality to which his roll applies, and that they are not among the classes exempt by law from taxation on mortgages.

In the case of automobiles, also, the state register of licensed motor vehicles may be drawn on for complete descriptions of every such vehicle and the name of the licensee. In some states in fact the law provides that a duplicate copy of every approved application for a motor vehicle license shall be transmitted by the state official responsible for the issuance of such licenses to the assessors of the district in which the owner resides. Unfortunately, license years and tax years do not always coincide, and the records of ownership on the license register may provide a very poor basis for the assessment rolls—a fact which compels assessors in many states to rely almost entirely on other sources of information even for this class of property.

Unsatisfactory as they are, therefore, the sworn personal property returns filed by owners still constitute not only the chief source of information relative to the ownership and value of personal property, but also the most convenient form of record.

Supplementary records in the form of a card index system are maintained in some cities for all the more important owners of personal property, the purpose being to provide a convenient running summary of the amounts which have been assessed from year to year against each firm or individual. In some cases, the major classes of tangible and intangible personalty which enter into the total assessment are entered separately. By this means, the assessor can place himself on guard against sudden and unwarranted decreases in annual returns.

The city of Newark, New Jersey, has developed a use-

ful extension of this form of record. It consists of a volume which the assessors there call a classified personal property register. In this volume all the firms and individuals engaged in one line of business are brought together, as nearly as may be in the order of their relative size; and columns are provided to permit the entry of successive annual assessments for each firm listed. In the absence of definite information from unbiased sources relative to the amounts of taxable personalty owned by each taxpayer, this volume has been found useful in establishing valuations on a comparative basis among competing firms, and between successive years for the same firm.

Methods of Unit Valuation

The basic facts concerning taxable property which have been assembled and recorded in the manner outlined in the preceding sections are not in themselves sufficient for the compilation of an accurate assessment roll. The information on ownership and on dimensions or quantity is complete; that on values is still fragmentary. The next steps in the assessment procedure are the development of units embodying quantity, grade and value, and their application as equitably and uniformly as may be to the component parts of taxable holdings.

The units selected will of course vary with the character of the property to which they are to be applied. The taxable holdings of one taxpayer may include land, buildings, equipment, machinery, stocks in trade, vehicles, household goods and personal effects, and intangible personalty. No single unit, of course, is adequate for use in the valuation of all these types of property. Each unit must take into consideration the physical and economic characteristics of the properties to be valued, and must be so designed as to facilitate comparisons between the

valuations of individual parcels of property in the same class.

Units which meet these requirements, together with uniform rules for their application, have been devised for land, for buildings, and for a few limited classes of personal property. Their use does not eliminate the need for judgment and ability on the part of the assessors. Rather, they give judgment and ability a medium through which to work. They are still far from perfect, but even in their present form they have been the chief means of bridging the broad gulf which formerly existed between tax laws and tax administration.

The application of the methods described below will frequently result in the valuation of individual items at odd amounts, such as $10,325.19, for instance. The entry of such a figure on the assessment roll would impute to the methods a precision not warranted by facts. It would, furthermore, greatly increase the volume of work involved in extending the tax rolls. Consequently, the amount cited above as an example is, as a general rule, rounded out to $10,350, or, in some cities, to $10,500. Whatever the tax rate may be, the total of the final tax on the property will be changed, as a result of this smoothing out, by an amount which is well within the limits of other probable errors.

The Land Value Unit

Until within comparatively recent years, value units and units of dimension as applied to land were considered synonymous. Just as textiles of a given kind and grade are priced at so much per linear yard or per square yard, so land in a given neighborhood was valued at so much per front foot or per square foot. For lands devoted to heavy industrial uses, the square foot unit is still the accepted standard of value among assessors and appraisers. As the growth of tax burdens, however, ac-

centuated the need for greater accuracy in valuations, certain difficulties in connection with the use of both these units for commercial and residential sites became apparent.

A simple figure (Figure 21) may be used to illustrate these difficulties. Lots A and B in the figure have an equal frontage and would, therefore, be equal in value under the front foot method of estimating values, in spite of the fact that Lot A has a larger area than B by

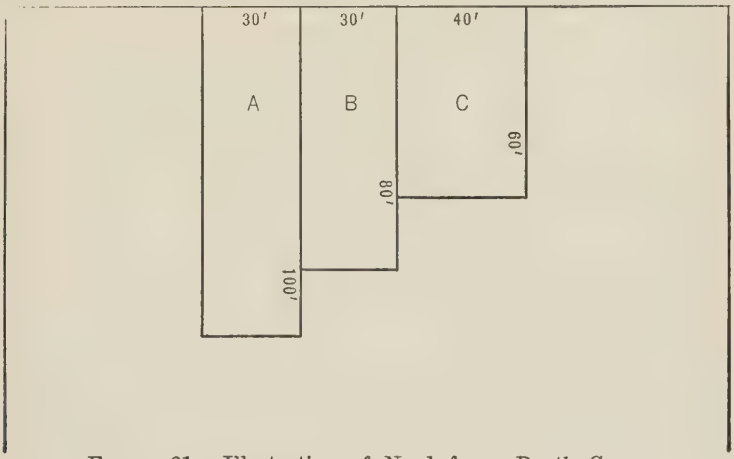


FIGURE 21. Illustration of Need for a Depth Curve.

600 square feet. Lots B and C are equal in area and would be equivalent in value under the square foot method, in spite of the fact that Lot C has ten feet more of street frontage than Lot B. All other things being equal, it is a matter of common knowledge based on experience that Lot A, because of its greater depth, would rent or sell for more per front foot than either Lot B or Lot C; and that Lot C, on the other hand, would yield more per square foot than either B or A. Units of value based simply on one or both dimensions of the lots are plainly inadequate for the comparative valuation of lots varying in depth.

The problem of devising a unit for comparing the values of lots otherwise similar but unequal in depth has occupied the attention of men concerned with the valuation of property for some sixty years. Rules of thumb applied by practical real estate men, court decisions, and the efforts of men charged with the duty of valuing property for taxation have all contributed to the development of a type of unit which has been adopted here and there by real estate men and by assessors from Maine to California, and which has now stood the test of some thirty years' use by assessing offices.

The front foot unit can be represented graphically by a straight line; the square foot unit by a plane. The new type of unit, however, is based on a concept which can be plotted only by the introduction of a third dimension. The base of the resultant graph is the area of the parcel of land taken as the unit. The third dimension represents the value in dollars of each successive square foot of that area as one recedes from the street line, and produces a broken series of planes for the upper surface of the graph. The exact slope of this series of planes varies somewhat in the units in use throughout the country. Furthermore, in several cities such as Buffalo, Cambridge, Cincinnati, Milwaukee, and Newark, the slope in the units used for business property is steeper than in those used for residential property.

The front foot method, if carried to its logical conclusion, assigns all the value of a lot to the tier of square feet lying nearest the street; the square foot method assigns equal values to all square feet regardless of distance from the street line. The adoption of any slope between these two extremes, therefore, brings the comparative valuation of the great majority of urban lots more nearly into line with facts as they exist than can be done by the use of either of the older rules. If actual cases are available indicating the rental values or sales prices of

comparable long and short lots, so much the better. To be quite frank, however, practically all the depth rules in use today were derived arbitrarily, and the claims made by many assessing offices and expert appraisers to the effect that their rules "were prepared from studies of a large number of sales," will not as a rule bear careful analysis.

The foregoing concept of the land value unit as one of three dimensions is not as yet widely held even in the cities in which the unit itself is in daily use. It was introduced here for the purpose of explaining the unit and is not essential to its utilization. In order to facilitate the application of the unit by assessing officials and clerks, it is everywhere broken up into two parts. The base of the unit is represented by a rectangular unit of area with definite dimensions. The third dimension is reduced to a cumulative table of percentages by means of which the assessor can ascertain at a glance what percentage of the value assigned to the base area is allocated by the rule to any piece of land which varies in depth from that of the base area. In other words, the percentages of unit value assigned to a lot 50 feet deep, for instance, is the sum of the percentages assigned to each successive square foot of depth from the first to the fiftieth inclusive.[1]

In some of the earlier applications of the unit system of land assessments, the unit of area which constituted the base of the unit of value was a standard lot, as for example, in the city of Camden, New Jersey, where the area unit was a rectangular lot with a frontage of 20 feet and a depth of 100 feet. The unit now most generally used, however, is the unit foot—a hypothetical strip of land located at or near the middle of a block, with a frontage of 1 foot and a depth at right angles to the street line of 100 feet, 120 feet, 140 feet or 150 feet,

[1] See Table III for typical percentage tables.

TABLE III

TYPICAL PERCENTAGE TABLES FOR THE COMPARATIVE VALUATION OF LOTS LONGER OR SHORTER THAN THE UNIT FOOT 100 FEET DEEP

Depth of Lot	*Percentage of Unit Value Allocated to Varying Lot Depths* *					
	Mathematical Curves		*Non-Mathematical Curves*			
	Hoffman-Neill **	*Edgar Harper* †	*Martin-Chicago* ‡	*Somers-Cleveland* §	*Newark Business* §§	*Newark Residence* §§
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1	6.76%	10.00%	10.99%	3.10%		
2	10.14	14.14	11.98	6.10		
3	12.86	17.32	12.97	9.00		
4	15.20	20.00	13.96	11.75		
5	17.32	22.36	14.95	14.35		
10	25.98	31.62	19.90	25.00	25.00%	15.00%
15	32.98	38.73	24.75	33.22	33.50	22.50
20	38.99	44.72	29.60	41.00	42.00	30.00
25	44.44	50.00	34.35	47.90	50.00	37.50
30	49.47	54.77	39.10	54.00	58.00	45.00
35	54.12	59.16	43.75	59.20	63.00	50.00
40	58.49	63.25	48.40	64.00	68.00	55.00
45	62.67	67.09	52.95	68.45	71.50	60.00
50	66.67	70.71	57.50	72.50	75.00	65.00
55	70.51	74.16	61.95	76.20	77.50	69.50
60	74.20	77.46	66.40	79.50	80.00	74.00
65	77.74	80.62	70.75	82.61	82.50	78.50
70	81.17	83.67	75.10	85.60	85.00	83.00
75	84.49	86.60	79.35	88.30	87.50	87.00
80	87.73	89.44	83.60	90.90	90.00	90.00
85	90.90	92.20	87.75	93.33	92.50	92.50
90	94.01	94.87	91.90	95.60	95.00	95.00
95	97.03	97.47	95.95	97.85	97.50	97.50
100	100.00	100.00	100.00	100.00	100.00	100.00
125	113.96	111.80	119.35	109.05	110.00	110.00
150	127.76	122.47	137.50	115.00	120.00	120.00
175	138.72	132.29	154.35	119.14	128.00	128.00
200	150.00	141.42	170.00	122.00	133.00	133.00
300	190.13	173.21	—	129.25	149.00	149.00
400	225.00	200.00	—	134.20	165.00	165.00

* Except for the Newark rules which are presented in full as published, the following tables are set forth in condensed form. The complete tables contain percentages for depths at intervals of one foot.

** The Hoffman-Neill rule is based on the theory that two-thirds of the value of any lot falls in the half of its depth lying nearest the street. Its formula, as worked out by Alden C. Fensel, is $y = 6.764\ x^{.5849}$. It is the official rule in New York City and a number of other municipalities

the depth in each case depending on the normal lot depth in the section where the rule is to be applied.

Two general methods are followed in the use of the unit. An assessor working under the rules formulated by the New Jersey state board of taxes and assessment, for instance, might assign a value to the land in a certain block front of $100 per unit foot 100 feet deep. An assessor from Washington, D. C., would express the identical idea under the rules he uses by assigning to that block front a value of $1.00 per unit, his unit value being the average value per square foot of a unit foot one hundred feet deep. If the New Jersey assessor had to assign a value to a lot in that block front with a depth of 50 feet, he would find by reference to his percentage table that a one-foot strip of land of that depth is worth 70.71 per cent as much as the unit foot, and he would arrive at the value of the lot by multiplying the resultant

in the vicinity and is widely used by commercial appraisers of real estate. It is probably used in the valuation of a greater volume of land value than all other rules combined. The percentages presented for depths in excess of 100 feet are those derived by the Fensel formula. The percentages actually used in New York City are 109 per cent at 125 feet; 117 per cent at 150 feet; 124 per cent at 175 feet, and 130 per cent at 200 feet.

† The Edgar Harper rule, in many current works on assessments, is stated to be used in London. Such is not the case. No depth curve is used in that city. It is used in this country by the New Jersey State Board of Taxes and Assessment, and by the assessors in Washington, D. C. Its formula as used by the former body is $y = \frac{\sqrt{x}}{\sqrt{u}}$ in which y is expressed in decimals of 1, instead of in percentages, and in which u is the unit depth of 100 feet. In Washington, the rule has been converted into a square foot unit rule by dividing the percentages indicated in this table by the corresponding depths.

‡ The Martin rule was designed for use in the loop district of Chicago. It has the smoothest curve of all the rules which do not have a mathematical relationship between x and y. Starting with a flat percentage of 10 per cent for every front foot regardless of depth it increases its percentage for each successive foot of depth by amounts ranging from 99/100 of 1 per cent for each of the first ten feet to 81/100 of 1 per cent for each successive square foot of depth from the 91st to the 100th inclusive.

§ The Somers rule, in the form which it took in Cleveland, is probably used in a larger number of cities than any other.

§§ The city of Newark, New Jersey, was the first to develop separate rules for business and for residential sections. The practice has been followed by several cities, among them a few in which normal business lots are of one depth and normal residence lots of another depth.

$70.71 by the number of feet front. It so happens that the curved surfaces of the Washington and the New Jersey units are identical in slope. The Washington assessor in valuing the same lot would learn from his table that the average value per square foot of a one-foot strip of land 50 feet deep is 141.42 per cent of his unit value. In the case under consideration, this figure would of course yield $1.4142 per square foot, which multiplied by the depth would again give $70.71 as the value of a fifty-foot strip.

In other words, unit value may be expressed in terms of unit square feet or of unit front feet without affecting the results obtained. The choice of terminology seems to be governed by whether urban land values are normally expressed in terms of front feet or of square feet. Assessors in Cambridge, Massachusetts, and in Washington, D. C., are the leading exponents of the square foot unit, and the plan seems to be gaining no new advocates outside of Massachusetts and Maine. From Connecticut to the Pacific Coast, the front foot unit is the one used most widely for the interpretation of unit values.

Mention has already been made of the fact that the unit foot is conceived of as lying at or near the middle of a block front. This qualification is made necessary by the fact that land lying at or near a corner may derive value not only from the street on which it fronts but also from the cross street on or near which it lies. Consequently, the value of a strip of land of the same shape and size as the unit foot which is derived from the analysis of sales or rentals of lands subject to cross street influences cannot justly be applied as the unit basis for the valuation of lots lying outside such cross street influences. The establishment of the unit foot value for the middle of each of the four fronts of a block forms an adequate basis, however, for the comparative valuation not only of the lots near the middle of those block fronts,

but also for the valuation of the lots lying at or near the corners. The manner in which this is done will be made clear below.

By the use of the unit foot, the sales value of a parcel of land or its capitalized rental value can be converted into a unit price, regardless of the extent to which the depth of the lot varies from the normal. Conversely, when the unit has been established by the analysis of sales prices or capitalized rentals, it can be applied to adjoining lots regardless of shape or size, in order to arrive at the taxable value which has already been defined, subject to other qualifications, as "the probable price at which it would have sold, had it been sold."

Establishing the Land Value Unit

The information on which the assessor bases his unit foot values is of course the data on sales and rentals to which reference has already been made and which he collects from the public and private sources indicated above.

Of the total number of parcels for which information as to value becomes available in any year, only a very small percentage will as a rule consist of vacant lots, and these frequently will lie in the undeveloped sections of the city where land values may still be largely speculative. A further small percentage will consist of lots improved with obsolete buildings which the purchaser intends to demolish and replace by more adequate structures. In the case of these two classes, normal sales prices are indicative of pure land values, and after careful scrutiny, in order to eliminate nonrepresentative transactions, may be reduced to unit foot values by working the depth percentage tables backwards. In other words, if the lot for which information on value is available is longer or shorter than the land value unit, the value indicated for the parcel by sales or other data is raised or lowered to the unit value by means of the

percentage tables whose use has already been described above.

In the great majority of cases, however, the available data on market value will refer to an improved lot, and will include not only land value but also building value. In order to arrive at land value, it is necessary to deduct building value from the total value—an operation requiring skill, judgment and the use of the building value units described later in this chapter.

The late W. A. Somers, who did yeoman service in developing modern assessment methods, proposed a plan for establishing relative land value units on the basis of public opinion, in order to obviate the palpable difficulties involved in deducing them from sales prices and rentals. The first step under his procedure was to obtain an agreement among qualified appraisers and citizens in general as to the location of the highest valued land in the community. Thereafter, the values of all lands abutting on streets leading away from this point were expressed in terms of percentages of peak value. In order to convert relative values stated in percentages into taxable values expressed in dollars it became necessary to get a public agreement only on one parcel of land at any point in the scale between the peak and the low valued fringe in the outskirts of the city. This plan has been followed in a number of cities by firms of assessment contractors. Whether it could be employed successfully in the larger metropolitan cities of the country is a debatable question. Furthermore, even in the cases where it achieves an equitable distribution of tax burden as between land owners within a city, there is still no assurance under it that it has achieved equality under the law as between land owners and the owners of other taxable property within the same tax district, or among landowners in several taxing districts all of which are subject to taxes for county or state purposes. Those

questions can be solved in any event only by resort to detailed analysis of sales values and rentals.

Land Value Maps

When the tentative unit land values derived from the analysis of available data have been established, they should be entered on a land value map. The land value map, where its use has been most highly developed, is generally a small scale map of the city showing merely streets, street names, block outlines and block numbers. No property lines are shown on it. For convenience, the scale is as a rule somewhat distorted, streets being drawn to a wider scale than the blocks themselves and street names often being indicated at the margin of the map. This permits the insertion of the figures indicating unit land values within the street lines opposite each block front. The map of the city may also be broken up into plates as in the case of the block and lot maps already described. For the convenience of the assessing clerks whose duty it is to calculate the values of individual land parcels on the basis of the land value units, glass topped tables are sometimes provided containing large scale copies of sections of the map.

Even after all the tentative land value units that can be deduced from actual sales and rentals are entered on the map, only a very small percentage of the total number of block fronts will be covered. The unit values of those block fronts for which information is not available may be interpolated, just as contour lines may be interpolated on a topographic map between points of known elevation. A careful scrutiny of conditions along a street between points for which the unit value has been established on the basis of sales or rentals, supplemented by a systematic search for information from private sources, will enable the assessor to achieve substantial accuracy in these interpolations.

After the tentative land value map has been completed by the assessor, it is subjected in several cities to public criticism with a view to correcting inequalities. The methods followed for this purpose must depend in part on the character and size of the community to be assessed, in part also on the personality of the assessing officials.

In New York City, the department of taxes and assessments publishes its tentative land value maps annually in the form of a 150-page book.[1] The foreword contains the following statement:

> Owners of real estate, brokers and appraisers are invited to coöperate with the department in order that this publication may be of the greatest use. The department will be grateful for criticism, and especially when critics accompany their suggestions with evidence to prove their assertions.

In the city of Cleveland, a similar method is pursued, but even before the land value maps are published, preliminary maps are submitted for criticism to civic organizations and community meetings. In some cities, on the other hand, assessors have found that one or two vociferous and opinionated individuals can dominate a community meeting and upset a tentative map on the basis of oratory rather than facts, and they have adopted the plan of advertising that the maps of a certain section of the city will be displayed for examination and criticism in the city hall between certain dates. Their experience has been that about 10 per cent of the taxpayers will appear to examine the land value units established for their neighborhood; that a portion of that number will make objections on general principles but that the remainder will have pertinent suggestions to make. All criticisms are tabulated and filed, and those based on

[1] See accompanying Figure 22 of a New York City land value map. This cut, which is reduced in size, does not show the entire page of the map. The section shown, however, includes the Wall Street area of New York City which contains one of the two peaks of high value on Manhattan Island.

well substantiated facts are utilized for the purpose of correcting the tentative land value units.

A land value map, when properly made, is one of the most important tools yet devised for the use of assessors in determining land values equitably and uniformly.

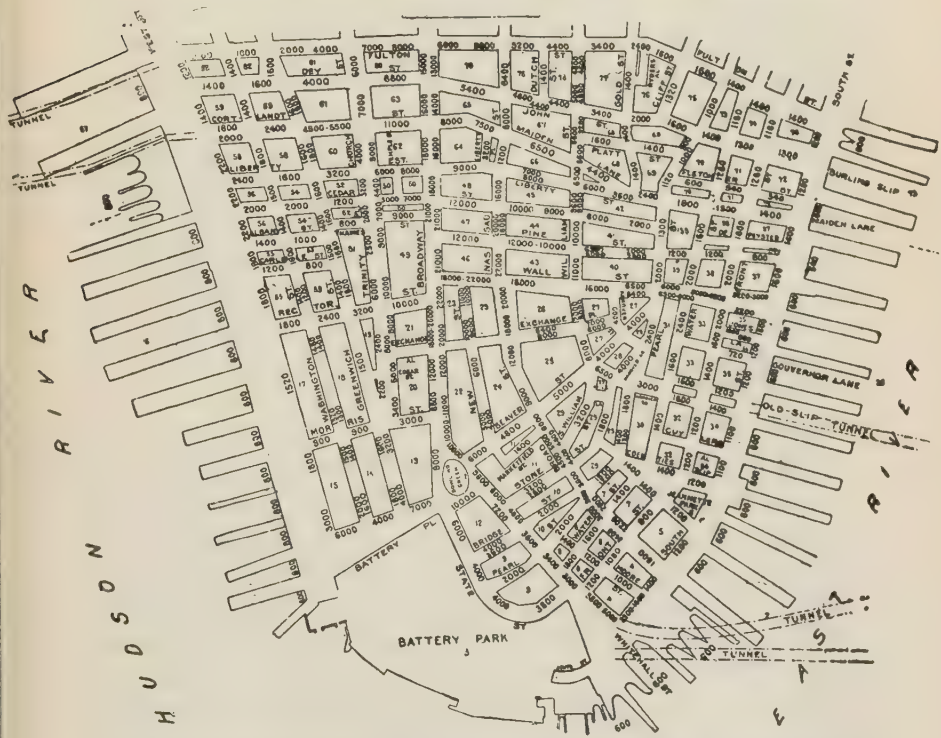


FIGURE 22. Reproduction from Page of Tentative Land Value Map of New York City for 1926.

Such maps are, however, but crudely developed at the present time. Their further development should lead to great improvements in more than one field of finance administration.

Application of Land Value Units

Once the land value units have been established, the computation of the value of nearly all rectangular par-

cels lying at or near the middle of the several block fronts becomes a comparatively simple matter, by the use of the depth percentage tables which have already been described. The principal exceptions to this statement are lots which are above or below the grade of adjoining lots, lots which have a frontage on two parallel streets, and lots which are too small to be utilized to advantage for the type of improvement for which the neighborhood is best fitted.

To lots of these types, which require special treatment, must be added practically all lots which lie within the zone of corner influence (that is, lots which derive value not only from the street on which they front but also from one or more cross streets), lots whose value is affected by side or rear alleys and lots which are not rectangular in shape.

Corner Influence

The most important single problem in the valuation of lots requiring special treatment is that relating to corners. Here again, as in the case of the depth rule, assessors have been compelled to resort to more or less arbitrary rules designed to conform to common knowledge, namely, that a corner lot is worth more in most cases than a lot of the same shape and size near the middle of either of the intersecting block fronts. Depth curves, as has been pointed out, vary somewhat in slope from city to city. Because of the greater complexity of the problem, however, there is a much greater divergence among the corner rules in use than among the depth curves.

The disagreement between assessors regarding rules for the valuation of corners is summed up in two questions which may be stated as follows:

To what distance does the influence of one street affect the values of lots abutting on intersecting streets?

In what terms can the amount of that influence be measured most accurately?

The last word in answer to the first question has by no means been spoken. Every rule in use today with which the writer is familiar, sets more or less arbitrary limits to the zone of corner influence. That the establishment of such limits results in marked discrepancies between the values assigned by the rules to adjoining front feet of equal depth, sometimes even when they are included in the same lot, is clear. Just how this difficulty may be overcome without destroying the concept of the unit foot as a strip of land lying outside the zone of corner influence, is not so clear. It is possible that the next step forward in the development of equitable assessment systems will be in the direction of producing a value slope after the addition of corner values comparable in smoothness to that which is now produced by some of the depth curves used in conjunction with the unit foot concept. Within the area of the arbitrary corner zone, some of the more logical rules have already achieved this ideal.

The persistence of arbitrary limits for the area affected by corner influence is due in part to the difficulty of finding some rule which will work without the establishment of such limits; in part also to the habits of thought created by rules of thumb applied by real estate men to lots in a given section of the city. The corner rules in use in Newark, New Jersey, and New Rochelle, New York, are direct offshoots of these old real estate rules. In those cities, it is assumed that a cross street always affects the value of a corner lot fronting on the high valued street for exactly 25 feet, or for the full frontage of the corner lot only, if it is less than 25 feet. In one of the variations of the Somers corner rule advertised throughout the country some ten years ago, in the Zangerle rule used in Cleveland, and in the Martin corner

rule used in the loop district of Chicago, corner influence is assumed to extend exactly 100 feet along each of the intersecting block fronts, regardless of intervening lot lines.

On the second question—that of the terms in which corner influence can most conveniently be measured—there is a similar divergence in the opinions held by assessors. The rules of the type used in Newark and New Rochelle uniformly express the increased value due to corner position in terms of percentages of the unit value of the street on which the property fronts. Without regard to whether the intersecting street is itself an important business thoroughfare or whether it is little more than an unimportant alley, the property lying within the arbitrarily limited zone of corner influence is assessed at a value greater by a fixed percentage than a lot similar in frontage and depth, lying in the middle of the block front on the high value street. For example, if a lot 25 feet by 100 feet lying in the middle of a block front is worth $25,000, then lots similar in shape and size, which are contiguous to either of the intersecting streets, will be assessed at 150 per cent of that value, or $37,500. Speaking generally, in the cities which continue to use this most rudimentary of all corner rules, the only variation from its rigidity lies in the fact that corner lots in residential sections are assessed at a smaller percentage of increase over interior lots than those in business areas.

The type of corner rule which is most widely used is one of the several developed originally by the late W. A. Somers. In this type also the increase in value due to corner position is expressed in terms of percentages of main street unit values, but the percentage of increase varies according to the ratio between the respective unit values of the main and the intersecting streets. For convenience in the use of the rules, tables are prepared

which indicate the percentages by which main street units are to be increased in the assessment of corner parcels for situations in which the main street unit is greater than the side street unit by ratios of 10 to 1, 10 to 2, and so on up to 10 to 10. The percentages for intervening ratios are calculated by proportion. As a rule, the cities which use this method provide three separate tables of percentages—one for use in the business section, an intermediate table for use in so-called semi-business sections, and a third for residential areas. This system of corner valuation has a great advantage over the other rules already discussed because it recognizes the fact that the character of the intersecting street is a factor in determining the amount by which the corner lot is increased in value over similar interior lots. Where the percentage tables have been well devised, these rules have given good service in a number of communities scattered all over the country.[1]

Another corner rule which has been widely used was also devised by Mr. Somers. It divides the area one hundred feet square lying at corners into one hundred numbered squares, each ten feet by ten. The value factors assigned to each of these squares for every combination of main and side street values from 1000 and 0, 1000 and 10, 1000 and 20, and so on up to 1000 and 1000, are contained in a set of 101 tables. In order to use the rule, a transparent square drawn to the same scale as the block and lot map, and containing the numbered squares, is superimposed on the map of the corner to be valued. The numbers of the squares lying within the lot lines of the several parcels within the corner area are then read off and set down in columns; the value factors assigned to those squares are ascertained from the table whose ratio between side and main streets corresponds to that of the corner under consideration, and are tabu-

[1] See accompanying Table IV of typical corner rules based on ratios.

lated and totaled. The totals for each lots are then multiplied by the main street unit value in order to arrive at the value assigned by the rule to the parcels lying within the corner zone.

TABLE IV

STONER RULES FOR CORNER VALUE ADDITION *

In all cases, the base value of a corner property is its value calculated as an interior lot fronting on the high valued street. The value to be added because of corner position is expressed in percentages of the base value, the percentages varying with the ratio of main street unit value to side street unit value, and with the character of the property in question. The percentages presented below are those for parcels with a depth of one hundred feet measured from the high valued street.

Ratio of Main St. to Side St. Value	*Central Retail Districts Frontage on High Valued Street*									*Semi-Business Wholesale Suburban Retail* †	*Residential* †
	20′	30′	40′	50′	60′	70′	80′	90′	100′		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	%	%	%	%	%	%	%	%	%	%	%
10 to 10	125	98	85	74	65	60	54	47	43	50.0	10.0
10 to 9	108	85	75	64	57	51	47	41	36	43.6	9.1
10 to 8	92	74	65	55	50	44	41	35	31	38.2	8.3
10 to 7	79	63	55	47	43	37	35	30	27	33.3	7.6
10 to 6	68	53	47	40	36	31	29	26	23	28.9	7.0
10 to 5	57	45	39	33	29	27	23	22	19	25.0	6.5
10 to 4	48	37	33	27	25	22	20	18	16	21.2	6.1
10 to 3	40	31	26	23	20	18	16	15	13	18.5	5.8
10 to 2	33	25	22	19	17	14	13	12	11	16.4	5.6
10 to 1	25	20	17	15	13	12	10	9	8	15.0	——

* These rules are widely used throughout the Southwest. They are an outgrowth of an early corner rule devised by W. A. Somers, and first used in St. Paul in 1896. Camden, N. J., uses a similar rule. The table was compiled from percentages used by J. B. Stoner of San Antonio.

† In semi-business, wholesale, suburban retail and residential properties a uniform percentage of base value is added for corner influence regardless of the frontage of the corner parcel on the high valued street.

The simplest and most logical of all systems of corner valuation, however, is one devised by the late A. D. Bernard of Baltimore,[1] and later developed and ex-

[1] A. D. Bernard, *Some Principles and Problems of Real Estate Valuation.* United States Fidelity and Guaranty Company, Baltimore (1913). (Not for general distribution.)

tended by John A. Zangerle of Cleveland.[1] The original Bernard rule was applicable only to corner lots in the retail section of the city, and arrived at the value of a corner lot by adding together the values of two interior lots identical in shape and size—one located at the middle of each of the intersecting block fronts.

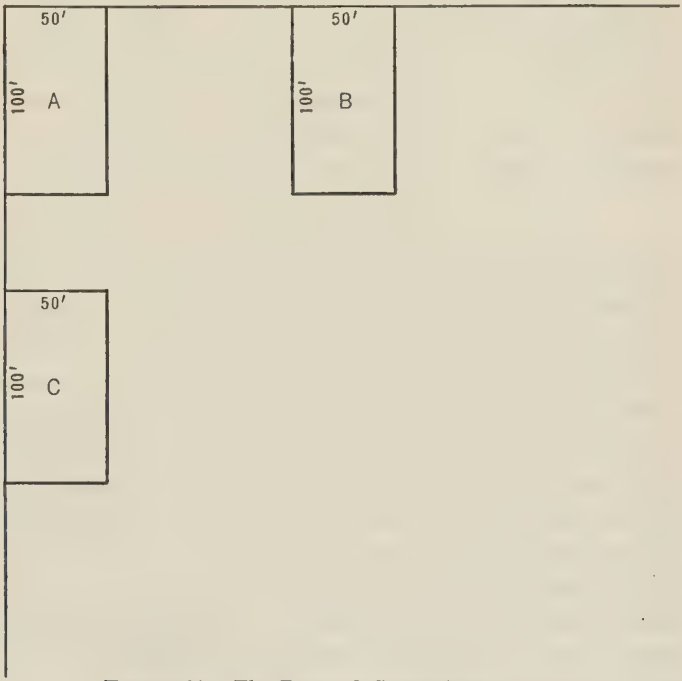


FIGURE 23. The Bernard Corner Rule.

In this rule, the value of corner lot A is the sum of the values of inside lots B and C. The rule was considered applicable by its author only to lots in the high class retail sections of the city.

In 1916, Mr. Zangerle, county auditor of Cuyahoga County, Ohio, was charged with the duty of reassessing the entire county including the city of Cleveland. He discarded the Somers rule which had previously been used in Cleveland and adopted the Bernard rule for use

[1] John A. Zangerle, *Principles of Real Estate Appraising* (1924).

in sections where the unit value on the main street was $200 or over. In subsequent reassessments, Mr. Zangerle modified this rule somewhat. Because public opinion was not yet ready to support so drastic a corner rule, he substituted a modified depth percentage table for use in calculating the corner value addition attributable to the hypothetical lot C, in place of the regular depth curve which he used in arriving at the value of lot B on the accompanying diagram (Figure 23). He insists, as Mr. Bernard had done before him, that the original rule gives a minimum value for high class retail corners, as evidenced in many cases by both sales and rentals. In many parts of the country, however, both owners and tenants have failed to realize the full advantage over inside lots which accrues to corner parcels. It is not unusual to find corner property in the heart of the retail sections utilized, as regards store layout, window display and entrances, exactly as though the property were located in the middle of a block front. Manifestly, where many of the buyers, sellers and tenants are still asleep to the potential value of their corner holdings, it is impossible for an assessor to maintain against appeal, assessed values based on these potentialities.

Mr. Zangerle's most important contribution, however, was the modification of the Bernard rule for use in sections of the city where unit values are less than $200. He did this by adopting a graduated scale of percentages, the graduation being based on main street unit values. In every case he assumes that the value of lot B constitutes the base value of lot A. If the main street value unit is $200 or more, he adds for corner value addition the entire value of lot C produced by the use of his special corner depth curve. If the main street value is less than $200, he in effect divides that value by 2 in order to arrive at the percentage of lot C value which is to be added to the base value. If the main street value is

$190, he adds 95 per cent of the value of lot C. If the main street value is $100, he adds 50 per cent of the value of lot C, and so on. This use of the rule is necessarily somewhat arbitrary, but it is flexible and seems to conform, at least approximately, to actual conditions as they are revealed by sales and rentals.

In addition to the types of corner rules described above, there are many others in use in cities here and there. Some are combinations of two or all three of the types outlined. Generally speaking, they introduce a series of confusing elements and are inherently quite as illogical as the first type of corner rule outlined above.

Irregular Lots

In the order of relative importance among the supplementary rules for the application of land value units, rules for the valuation of irregular lots—that is, lots which are not rectangular in shape—rank next to the rules for the valuation of corners. In some cities a very large percentage of all land parcels are irregular in shape. It is rare, however, that the boundaries of such parcels other than occasional frontages on curving streets are not straight lines. With few exceptions, therefore, such parcels can be divided into two or more parts which will be rectangular or triangular in shape. The valuation of the rectangular fractions is a simple matter of applying the rules which have already been described.

The triangles, however, present a somewhat more difficult problem. Here, as in the case of the other difficult problems, the tendency of assessors has been to resort to more or less arbitrary rules of thumb.

The most common rule assumes that any right-angled triangle with its base on or parallel to the street line, is worth two-thirds as much as the smallest rectangle which can be erected on the base and which will contain the triangle. It is a simple matter to prove that this

rule violates the principles on which the depth curve concept is based. The same statement applies even to certain relatively more accurate rules which have been devised to eliminate the palpable errors in the first rule.

The correct solution of the problem involves the summation of the percentages of unit value that would be assigned by the depth curve to successive strips 1 foot wide. This method would be not only laborious if carried on by simple arithmetic, but would be an approximation at best because of the difficulties involved in arriving at the values of the triangles at the base of each of the successive strips. When, however, the depth curve has a mathematical formula, as in the cases of the rule devised by the New Jersey state board of taxes and assessment and of the Hoffman-Neill curve used in New York City, the calculation can readily be made by the use of calculus. The fact that the average assessing clerk is not versed in higher mathematics does not make this plan impracticable for general use. It is possible to reduce the calculations to charts in which the multiplier for any triangle can be ascertained by finding on the chart the intersection of the proper lines for the base and the perpendicular of the triangle.[1]

Alley Lots

Lots which abut on alleys present special problems in valuation, and the rules devised by assessors for the solution of those problems vary widely from city to city. In some cities, one-half the width of the alley is treated as though it belonged to the lot which abuts on it. Under this rule a lot with a frontage of 40 feet, which is bounded on one side by a ten-foot alley, is treated as though it were a lot with a frontage of 45 feet and assessed accordingly. If a lot 100 feet deep abuts on a ten-foot

[1] Mr. A. C. Fensel, formerly a student at the National Institute of Public Administration, has prepared a chart of this type for use in connection with the Hoffman-Neill curve used in New York City.

alley at the rear, the lot is assessed as though it were 105 feet deep. In other cities the assessors proceed on the assumption that an alley adds greater value to abutting property than that which would be conferred by a permanent easement for light and air on one-half the width of the alley, and they consequently add two-thirds of the width of the alley to the frontage or to the depth, as the case may be, of abutting lots. In other cities the value of the alley is calculated as though it were a lot in private ownership, and the value arrived at in this way is then distributed over abutting lots in proportion to the linear feet of the properties abutting on it.

Instances may be cited in which alleys have taken on the characteristics of minor streets to which a unit value should be assigned. In other cases, the alleys have become little short of public nuisances which are a detriment rather than an advantage to the lots which abut on them. When alleys run for block after block between parallel streets, on which all properties which abut on the alleys front, the influence of the alley on the adjoining lots will be reflected in the unit values of the streets parallel to the alleys, and no further allowances need be calculated. In short, alley rules which may be entirely applicable to the conditions existing in one city may be entirely inapplicable in another. That the alley is coming to be more or less of an anachronism under present day conditions is indicated by the fact that provision is rarely made for alleys in the more recent subdivision plans.

Double-Frontage Lots

In the assessment of lots with frontages on two parallel streets, a very common practice is that of finding the merge point; that is, the point in the parcel of property under consideration at which a square foot has the same value regardless of the street from which it is cal-

culated. The lot is divided at that point and is valued as though it were two lots, one fronting on each of the two streets. If the lot is vacant, or if it is improved as one parcel, there can be little doubt that this merge point method is valid. If, however, each frontage of the lot is improved separately and more or less uniformly with the adjoining frontages, it may be more accurate to divide the lot along the line at which the adjoining lots are divided, and to value each portion as though it were a lot of normal depth for the block. In most cities where the merge point method is used, the division line is established by means of rules of thumb based on proportion. Where the distance between the two streets is considerable and where the two streets are not too dissimilar in value, this method gives reasonably accurate results. Where greater accuracy is required, it is possible to employ a mechanical merge point finder.[1]

Off-Grade Lots

The assessment of parcels of land which are above or below grade presents one of the most perplexing problems with which the assessor has to deal. In exceptional cases such lots may be worth more than lots in the vicinity which are on grade, as for instance, in sections where either dumping space or material for fill is in demand. In such cases the owner may be in position to derive a premium from someone who will bring his lot to grade and pay him for the privilege of doing so. In the great majority of cases, however, the fact that a lot is off grade will reduce its value below those of adjoining lots which are on grade. In some cases the cost of raising or lowering the grade of the lot will amount to more than the value of lots which are already on grade, in which case the lot can have no value based on present utility. It is

[1] Such a finder has been designed by Luther Gulick of the National Institute of Public Administration.

rare, however, that such a lot does not have a sales value for the reason that anticipated increases in the value level of the normal lots in that vicinity may eventually leave a considerable margin between market value and the cost of raising or lowering the grade of the lot.

The only attempt that has yet been made, so far as the writer is aware, to reduce the assessment of off-grade lots to a uniform rule, is that embodied in the tables recently adopted in Cincinnati. In those tables off-grade lots are divided into six classes. The first class, ranging from 5 feet above grade to 2 feet below grade, is assessed as though it were on grade. The sixth class includes all lots which are more than 15 feet above or below grade, and is assessed at 20 per cent of the value that would be assigned to a lot in class 1 or exactly on grade. Intervening classes are assessed at 30, 50, 70 and 90 per cent respectively, of full unit value. The line established by the rear of the buildings on adjoining lots is arbitrarily taken as the base on which variations from street grade are measured.

Plottage

Another troublesome factor in land values which some assessors ignore entirely and which others overemphasize, is that designated by the somewhat vague term plottage. As a city grows and as office building, department store and apartment house sections develop, it becomes necessary to utilize larger parcels of land than those into which the city was originally subdivided. Promoters of large buildings, therefore, must assemble two or more normal lots into one plot in order to obtain suitable sites. The task of assembling involves both delay and risk: delay, because the several owners of the requisite plots may not all be ready to sell at the same time; risk, because an owner whose lot is essential to the site which is being assembled may find himself in a position to

demand an exorbitant price. The delay inevitably and the risk potentially increase the cost of assembling such a site to a point considerably in excess of the sum of the normal purchase prices of the small parcels concerned. Because of that fact, an assembled site 100 feet by 100 feet, let us say, will probably bring in the market considerably more than four times as much as a lot 25 by 100 feet in the same location. That difference in price is the element of value to which appraisers and assessors have applied the term plottage.

Some of the men who contributed largely to the development of modern assessment systems held to the theory that land value flows uniformly throughout a block regardless of intervening lot lines. They argued that a certain potential value was created for every square foot of land subject to certain street influences, and that it was no concern of the taxing power if the owners of individual parcels saw fit to continue the existence of artificial lot lines which prevented the development of the block as a whole in a manner consonant with the economic possibilities created by the existence of the city. The theory cannot be dismissed lightly. Its complete rejection would permit the deliberate subdivision of an otherwise valuable block into parcels of such useless shape or size that their taxable value would practically disappear. On the other hand, the fact that buildings are costly and relatively permanent improvements which can neither be removed to a more suitable site nor demolished without loss to the owner, introduces certain factors of rigidity into existing lot layout in a developed neighborhood which can hardly be ignored by an assessor in the discharge of his duties.

While the influence of shape and size on the value of individual parcels is always at work, it is a comparatively minor influence throughout the greater part of most normal cities. Its influence becomes important, however, in

sections that are changing rapidly from a lower to a higher utility, but it may also make itself acutely felt in established neighborhoods in which faulty planning has left parcels too small or too irregular in shape to be utilized for the purposes to which the neighborhood is devoted. The adoption of zoning ordinances has in some cases accentuated the evil effects of faulty planning on such parcels.

In districts of the first type, where an assembled plot frequently has a value considerably in excess of that indicated by the unit value of neighboring smaller parcels, the assessor can make a step toward greater accuracy in assessment by adding an appropriate percentage for plottage. In stable sections, on the other hand, where small or odd shaped parcels are sandwiched in between existing buildings whose owners neither need nor desire additional land, a deduction from the value indicated for such lots by the unit value for the block front may sometimes be in keeping with the principles of justice and equity toward which modern assessment systems are striving.

Building Value Units

Methods of valuing buildings on a unit basis have been in use by builders, appraisers and insurance adjusters for many years. The buildings to be valued are reduced to units of quantity in the form of square feet of floor space, cubic feet of contents, or, in some instances, square feet of area covered. The value per unit is deduced from the cost of constructing similar buildings. The costs per unit when multiplied by the number of units in the building to be valued result in a reasonable estimate of its cost of reproduction new.

For the purposes of the builder the method is substantially correct when applied to buildings of standard plans and specifications, for he is concerned as a rule with the

cost of constructing a new building. Appraisers and adjusters, on the other hand, are interested in arriving not at costs of reproduction but at present values of buildings already in existence. Consequently, they have had to devise means for modifying the results which are satisfactory to the builder in order to provide for structural deterioration due to age or to unusual wear and tear; for loss of value due to faulty design, to changes in style of architecture, and to improvements in methods of construction; for economic waste due to the fact that a building adequate for a certain use was erected on a site best suited to a different use; and for loss of value arising because the utility of the section in which the building was located has shifted from that for which the building was adapted to one for which it is not adapted.

None of these factors is easy to measure. Even in the case of structural deterioration due to age and use, commonly referred to as depreciation, there is a wide difference of opinion among the most careful appraisers. The evaluation of the other factors, which for convenience have come to be grouped under the general term economic obsolescence, remains largely a matter of individual opinion on the part of the appraiser who makes the estimate. The only check on the accuracy of the final results consists of the capitalization of net rentals, and the deduction of the appraised land value from the total based thereon in order to arrive at the building value. That this method is itself difficult to apply, any appraiser will testify.

Fortunately, while the factors which bring about economic obsolescence are operative in practically all, if not all buildings, regardless of location or type of construction, they assume a role of major importance in only a relatively small percentage of the buildings in a normal city. In the great majority of cases, the error due to failure to take it into account is well within the probable

margin of error inherent in the other steps involved in the process of valuation. When a certain type of building continues to be built year after year, it is reasonable to assume that that type has proven capable of earning the going rate of interest on the cost of construction, and that the elements which are most subject to economic obsolescence have been largely eliminated from the plans and specifications. Only in cases where such a building has been erected in a wrong location will probable market value vary from cost of reproduction by more than the amount of structural deterioration due to age and use.

It is on the basis of these methods that the assessors have founded their systems of valuing buildings for taxation. Their units of quantity for the valuation of individual buildings they derive from the building records already described. Their difficulties arise in classifying the units into grades ranging from the highest type of modern fireproof office building or apartment house to the lowest type of cheap frame structure, and in assigning a value per unit to each of these grades.

Fortunately, a number of factors have combined to simplify the task of the assessor in compiling his building classification. The influence of uniformity in the sizes of lots, and that of state laws and city ordinances on the percentage of ground area that may be covered and on the materials and type of construction that may be employed, have combined to establish more or less rigid limits within which building designs for similar uses vary. The tendency toward similarity brought about by these physical and legal limitations is accentuated by certain traits in human nature. The great majority of men are imitators rather than originators. Furthermore, when changes occur in the legal or economic factors which govern building and compel a period of experimentation in the form of new buildings, only those build-

ings will tend to be copied which prove economically best adapted to the new conditions. Even in the case of a large percentage of one-family residences, where individual tastes and preferences exercise their greatest influence, a careful examination of structural details reveals the existence of a number of well defined types, the buildings in each type varying in superficial appearance and in minor features rather than in the fundamentals which comprise the major portion of the cost of construction. Furthermore, the additional cost of gratifying the personal whims of the owner when carried to extremes, rarely adds a full equivalent to the market value of the building, as prospective purchasers whose tastes exactly coincide with that of the owner are difficult to find.

At a time such as the present when the estimates of building contractors as to the costs of new buildings vary widely, when buildings erected twenty years ago sell for from one and a half to two and a half times what it cost to build them, and when appraisers for mortgage loans engage in acrimonious debates as to amounts which may safely be advanced on buildings, it is impossible for an assessor, who in some cases must value every building old and new in the city every year, to devise any system that will function with 100 per cent accuracy. Nevertheless, he can set up a system which will achieve approximate uniformity for all buildings within a well defined class, and relative equality under the law between classes. His chief difficulties will arise in the assessment of buildings which cannot be classified; in entire classes of buildings which are no longer being reproduced because changes in the building laws prevent, or because changes in modes of life make them unsuited to present day conditions; and buildings which from a structural standpoint belong in certain classes, but which cannot earn an adequate income on the amount invested in them

because the neighborhood in which they are located does not provide an effective demand for them.

There is a much greater variation from city to city in the tables of building grades and costs than there is in the rules for the valuation of land. This is attributable in part to variations in building styles between sections of the country; in part also to differences in costs of building material and labor. Quite aside from these valid reasons for dissimilarity, however, is the fact that many of the tables in use have been prepared in too great a hurry and without adequate analysis of the nature of the problem. The classes provided may not only be too few in number, but they may also be poorly defined—as in cases where definitions are based on factors of use rather than on those of structure on which costs must rest. In other cases, larger numbers of classes are provided, but the classes are so loosely drawn that maximum and minimum costs of construction per unit are provided in which the former are sometimes double the latter. Manifestly, something is wrong with a set of tables under which one assessing clerk can arrive at double the valuation placed on the same building by another clerk, before taking depreciation and obsolescence into consideration.

An excellent set of tables from the standpoint both of logical classification and of clear-cut definition is that devised by John A. Zangerle [1] for use in Cuyahoga County, Ohio. The plan on which his classification is based may well be adopted by assessors even in cities where costs of construction and types of buildings vary widely from those in Cleveland.

In the preparation of the tables both as regards the definition of classes and the unit values assigned to them, an assessor will do well to avail himself of the experience of local real estate men and builders. A number of cities

[1] John A. Zangerle, *Principles of Real Estate Appraising* (1924).

have followed this course, greatly to the peace of mind of the assessing force and the satisfaction of the taxpayers.

Personal Property Assessments

For only two types of personal property, so far as the writer is aware, has anything even remotely resembling a unit plan of assessment been devised. The tax commissioner in Massachusetts has supplied tables for the use of local assessors based on the deduction "that the full and fair cash value of the machinery used in manufacture in cotton mills bears a close relation to the number of spindles in the mills."[1] A number of cities —in some cases entire states—also assess motor vehicles uniformly according to make, type and age, the exact amounts at which the cars are assessed being based in some cases on tables of insurable values compiled by insurance companies.

A rough approximation to a unit system for household goods and personal effects has also been developed in certain cities. The system is based on the assumptions that persons within a certain income range will tend to congregate in certain sections of the city, and that the personal belongings of families in that section will be roughly equal in value. The city is divided into zones, every head of a family in the poorest zone being assessed at a zone rate for personalty, every head of a family in the next higher zone being assessed at a somewhat higher zone rate, and so on. Only in those sections of the city where persons of wealth dwell is any attempt made at individual assessments. That this method of assessment is in violation of the law, in that it is based neither on sworn returns nor on personal "viewing" by the assessor, cannot be denied. On the other hand, the listing

[1] Massachusetts Department of the Tax Commissioner, *Instructions to Assessors, 1917*, pp. 10-12. *Ibid*, 1919, pp. 9-12.

and valuation by the assessing force of all the items of property of this type would be a physical impossibility. Listing by property owners themselves has proved both impracticable and inequitable. The facts remain, therefore, that the zone plan results in more equable assessments than can be obtained by either of the legal methods, and that the cities which developed it have been allowed to continue its use without interference by state tax commissions or by the courts.

In the valuation of the tangible personalty of manufacturing and mercantile corporations, cities have occasionally employed commercial appraisers when the need for increasing taxable aggregates became acute. The use of auditors for the purpose of verifying the accuracy of sworn returns relative to both tangible and intangible personalty is a more common procedure. Both methods are so expensive, however, that they can be employed only in cases where the property holdings of the taxpayer are extensive. Any attempt to apply either of these methods to all tangible and intangible personalty holdings in the city might well involve a greater expenditure for purposes of assessment than could be easily recovered in increased taxes as a result of it.

In short, no method has yet been devised for the assessment of all personal property in compliance with the law. In many taxing districts the personal property tax is little more than a voluntary contribution on the part of the taxpayer. In others, it is a penal contribution enforced by the administration against its political enemies. That it can ever be made a true tax, comparable in economy of administration, efficiency and equity to the real estate tax is a vain hope.

Organization of the Assessor's Office

The old concept of the assessor's functions—a concept which is still written in the laws of many states—placed

the emphasis on their quasi judicial nature, and overlooked the purely administrative features. For the discharge of the judicial duties a board of three, five, seven or more assessors, often with overlapping terms, was established. In the smaller municipalities this board was provided with little or no clerical assistance. The members of the board were sometimes selected by election, sometimes by appointment. In some jurisdictions, the board as a whole, or the individual members other than the chairman, worked on a part-time basis and were paid a certain sum per diem, with an additional rigidly limited allowance for expenses.

In some cases the law stipulated—and still does for that matter—that every parcel of property should be assessed by the board as a whole after a careful "viewing" of the property. Manifestly, the amount of information about a property which a group of individuals of varying degrees of expertness and inexpertness in matters of valuation could get by a perfunctory viewing of it was not great, and the extent to which they could thereafter amplify their knowledge concerning it by a further quasi judicial discussion was even less. As the properties increased in numbers, in values and in diversity, it became necessary to make the assessors full time officials, and later to divide the city into districts, each in charge of one member of the board. Occasionally, the latter step was taken by the assessors themselves without the authority of law. In the course of events, a tendency developed to assign to each individual member of the board the district of the city with which he was most familiar—the one in which he and his friends lived. Whatever illusory advantages this plan may have had for the friends and supporters of the individual assessors, it further disorganized an already unworkable scheme of organization. It brought to the districts within the municipality all the evils of decentralized

administration and of competitive underassessments, the elimination of which between counties and municipalities still defies in many states the most strenuous efforts and the most careful planning on the part of state tax authorities.

Whether the board functioned as a whole, or whether its members acted individually, there was rarely any one under the board system whose duty it was to take charge of the large and constantly growing amount of administrative detail. The establishment of suitable clerical forces lagged behind the increasing volume of work. Consequently, the members of the board were compelled to assume a larger and larger burden of purely clerical duties. They became—and still remain in a number of our cities—a body of men who are overpaid for a type of clerical work which they do quite badly, and who have no time left for the discharge of their supposedly quasi judicial functions.

Both logic and experience support the movement for one-man control in assessing offices. Matters of policy are rarely left to the decision of assessors in any event, such questions being resolved for them in state legislation, city ordinances, court decisions and regulations of the state tax authorities. The fact that current market values are established by law as the basis for assessed values eliminates the most perplexing question which confronts the appraiser—the probable relationship existing between current market prices and the present true values which will be substantiated retrospectively by future events.

The duties which are properly part of the assessor's office have already been classified under four heads—the collection of information on quantities and values; the recording of that information; the analysis of the information in order to arrive at units of value; and the application of these units to every piece of taxable prop-

erty in the city according to its location, dimensions and character. There can be no doubt in the mind of any one that the first, second and fourth of these duties are purely administrative, and that they require for their performance the type of organization which private business has found best adapted for the discharge of analogous duties—a well-organized clerical force operating as a team under one executive head. Relative to the third of the duties, there is certainly good ground for the contention that the establishment of unit values on the basis of current sales is as purely administrative in its nature and partakes as little of a judicial character as the fixing of contour lines on a topographic map after the field men turn in their notes.

The internal organization in successful offices has followed either along functional or geographical lines, or a combination of both. In cities large enough to warrant the assessing office in maintaining its own tax maps without having to rely on the city engineer's office, the function of map maintenance is of course vested in a separate division. Aside from this function, all other duties connected with assessing in the city of Newark, New Jersey, for instance, are divided on purely geographical lines. One employee is responsible for all the work in connection with the assessment of land, buildings, personal property and polls in the district assigned to him, with the single exception of the establishment of the land and building units, which is a function retained by the central office. In Houston, Texas, on the other hand, one division of the office force is responsible for all assessments of land throughout the city, another for buildings, and a third for personal property. New York City is an example of a combination of the two plans. The assessment of the real estate of public utility corporations is handled by one division; the personal property of the same corporations by another; for ordi-

nary real estate the city is divided into eighty-two districts, each in charge of a district deputy and one clerk; ordinary personal property is handled by another division with five subdivisions—one for each of the five boroughs in the city.

The Handling of Appeals

Under the old plan of organization which has already been discussed, the same board which was responsible for making the assessments was also charged with the duty of revising assessments on appeal by taxpayers who considered their property overassessed. The same men, in other words, who were responsible for fixing the taxable value of a piece of property were then supposed to pass in a quasi judicial capacity on the accuracy of their own valuations. Since their appraisals in the first place had not been made on a comparable basis, and since it is rare that any two properties in a city will be exactly alike, both the protesting taxpayer and the board whose duty it was to pass on his appeal found themselves in a difficult situation. In the absence of political or other pressure, the board tended to support its valuations against attacks. Even in cases where the board was anxious to grant justice, its efforts were generally abortive. This was due to the fact that no amount of revision and equalization, short of a complete reassessment, can make a good assessment roll out of a bad one.

Modern assessment procedure endeavors to equalize assessments during the process of making them. Furthermore, the methods employed provide the basis for an intelligent discussion of the relative values of properties in case an appeal is brought. The type of single-headed organization which is best adapted, however, for the making of an assessment is not well suited to pass on appeals. In order to make the right of appeal more than a purely theoretical one for the small taxpayer,

some means must be found to provide a prompt, inexpensive and impartial administrative review.

In many of the larger cities where the old boards of assessors still survive in name, but in which the actual work of assessing is performed by an administrative staff under a permanent head, those boards have become largely boards of review with only the most rudimentary administrative duties. They can, and frequently do, render fair and impartial judgments in the case of assessment appeals. In smaller cities, however, where the board may still be compelled to take an active part in the work of assessment, their attitude in cases brought before them on appeal is less apt to be free from bias.

In some of the cities where the old boards have recently been replaced by a single-headed assessing force, ex officio boards of review on which the assessor may or may not be represented have been set up. The argument made for requiring the assessor to sit on the board of review is based on the assumption that he alone of all the city officials is capable of understanding the method of assessment he used. The assumption is wrong throughout. One of the outstanding merits of modern assessment systems is that anybody of ordinary intelligence can understand the methods employed and can apply them to his own property and to that of his neighbors, if he will collect the basic information necessary. An assessor should always be required to attend all sessions of the board of review and to present all the data on which he based his assessments. He should not, however, be given a vote in deciding between the relative merits of his own arguments and those of the taxpayer who feels himself unjustly treated. That would be equivalent to loading the dice against the taxpayer—a condition of affairs which the modern assessment system was designed to correct.

An assessment which cannot be subjected to impartial scrutiny does not deserve to stand and the best way to create public confidence in the equity of assessments is to insure to each taxpayer, rich and poor, the right to a fair hearing. Furthermore, there will always be in every city a certain number of properties concerning whose value there is room for honest differences of opinion. Chief among properties of this type are the holdings of public utility companies, unusually large and ornate buildings, buildings which are not well adapted to their sites, and occasionally both land and buildings in zones of shifting utility. Expert appraisers, buyers and sellers, and owners and tenants may differ widely in their estimates of the values of such properties. Consequently, it is no reflection on the honesty or the ability of an assessor if he fails to arrive at assessed values for them, which will please all the parties at interest. Not even the board of review can hope to compose all differences of opinion as to such properties, and the questions raised can often be settled only by a more or less arbitrary, but nevertheless binding, decision by the courts.

In some states there is still little or no provision for administrative review, almost the only appeal from the acts of the assessors being direct to the courts. Because of the expense involved in court proceedings, this is equivalent to no review for the great majority of taxpayers, and accounts in part for the fact that small properties tend to be assessed at a higher ratio of full taxable value than large properties.

In several states adequate provision is made for administrative review in addition to that provided by the city itself. In New Jersey, for instance, any taxpayer may appeal to the county board of taxation—a board of three men appointed by the governor for overlapping terms in each of the counties of the state. It is the practice of these boards to designate certain days for hearings

in each of the taxing districts in the county. The rules are simple, and before the best of the county boards in that state, the poorest or most ignorant taxpayer is reasonably sure of a fair hearing without cost to himself beyond the time involved in stating his case. If he is dissatisfied with the judgment of the county board, he may carry his appeal to the state board.

Even these provisions for review, however, are effective only in those tax districts of the state which have adopted adequate assessment methods. It may be possible to ascertain whether a given property is assessed at more or less than full taxable value, but that information alone is quite valueless so far as equalization of tax burden is concerned unless it is accompanied by information also relative to the average ratio of assessed value to full value for all the properties on the roll. The county boards in New Jersey are given broad powers to order any assessor "under the direction and supervision of such board, to make up and prepare corrected tax lists"; and after investigation, they may even on their own initiative "revise, correct and equalize the assessed value of all property in the respective taxing districts." Short of a complete reassessment, which certain boards have been compelled to resort to from time to time, the exercise of these powers is most difficult in the poorly assessed districts where it is most needed, and most feasible in the well-assessed districts where it is least needed. To emphasize what has already been stated, the prerequisite to an effective administration of review is a systematic plan of assessments.

Where adequate administrative review is provided there is a marked tendency on the part of the courts to refuse to entertain appeals until all remedies before the administrative boards have been exhausted. Furthermore, the courts as in the case of the state of New Jersey are inclined to leave the determination of facts to the

administrative boards and to confine their own decisions to matters of law. A separation of functions such as this is of course desirable from the standpoint both of the small taxpayer and of the courts, and in no way limits the remedies which are available to all taxpayers under the older system.

In tax districts where adequate administrative machinery exists both for assessment and review, the boards charged with the duty of review are enabled to operate with a maximum of efficiency. Appeals based merely on a desire for lower taxes but without sufficient foundation on well-substantiated facts become easy to detect. Leaving the properties of public utilities out of consideration, valid appeals occur chiefly in two classes of property: undeveloped suburban property in sections where abnormal speculative sales have occurred; and developed properties where the assessor's deductions for depreciation or obsolescence may have been inadequate in the light of data on actual property income supplied by the owner. It has been the experience of some of the New Jersey boards that it is rarely necessary to reduce the unit basis of land assessment in developed neighborhoods, and that a reduction in assessed building value is frequently the only remedy needed in such areas.

CHAPTER XII

SPECIAL ASSESSMENTS

Special assessments have certain characteristics which distinguish them from general taxes.[1] Unlike general taxes, they are imposed not against all the taxable property in a general taxing district, but against selected properties which are frequently, but not invariably, set up into special districts created for the purpose of making the levy. Under the terms of general tax laws, every parcel of taxable property is included within some general taxing district for local purposes, and it cannot be included in more than one district of the same class. There are no similar provisions concerning properties subject to special assessments. At any given time, a considerable number of parcels of property in a municipality may lie outside of all special assessment districts. On the other hand, there is no general prohibition in most jurisdictions against the inclusion of one property in two or more overlapping special assessment districts at the same time. General taxes within one taxing district must be levied at rates which are uniform, if not for all property, then at least for all property in any class that may have been established by the tax law. Special assessment rates on the other hand may, and fre-

[1] The term "assessment" has two distinct meanings as used in tax laws: in one sense, it is the valuation of property or other criterion of taxable capacity as a basis for the levy and apportionment of a tax; in the other sense, it is the levy of a tax. In the preceding chapter dealing with the assessment of property for taxation, this term is used in the former sense. The term "special assessment" means primarily a special levy; it includes the meaning of a special valuation only by implication and as a step in making the levy.

quently do, vary widely on properties of the same kind lying in the same special assessment district.

Types of Special Assessments

In spite of these common characteristics, the revenues grouped under the head of special assessments are derived from four types of levies which are markedly dissimilar from the standpoint of the legal theories on which they rest. It must not be assumed, however, that these always exist side by side in all jurisdictions, or that they are separated from one another by clear lines of demarcation. The four types, with the peculiarities which distinguish them in their purest forms, follow:

1. *Special charges for outlays made by a governing body for the abatement of nuisances.* Levies of this type are incidental to the exercise of the police power, and the total cost of the abatement is charged directly to the individual or individuals responsible for the existence of the nuisance. The drainage of pools of stagnant water on private property, and the elimination of cesspools by the construction of sewers, are among the public works which, under the laws of some states, may be financed by levies of this character.

2. *Special charges for outlays resulting from the improvement of publicly owned appurtenances to private property.* In some jurisdictions, it is held to be the duty of a property owner to construct and maintain in good repair the sidewalk and alley paving abutting on his property. If he neglects this duty, the governing body may invoke its police power to do the work for him. In such cases, the total cost of the improvement may be charged against the property to which it appertains.

3. *Special levies imposed on properties within a district created for the purpose, for all or part of the cost of specified public improvements constructed or public services rendered within that district.* Levies of this

type are apportioned on a wide variety of bases—such as the dimensions of land parcels, or the values at which lands or real estate are assessed for general taxes—and tend in some cases to become special taxes imposed on a base which differs somewhat from that on which general taxes are levied.

4. *Special assessments imposed on properties benefited by public improvements or services in proportion to, and not in excess of, the amount of such benefit.*

The manner in which legislative enactments and administrative procedure tend to blur the lines of demarcation between these types is indicated below.

Levies for the Cost of Abating Nuisances

From the standpoint of justice and equity, there would seem to be a distinct place in any system of special assessments for a type of levy under the police power for the cost of abating nuisances which the person responsible for the existence of the nuisance neglects to abate. Nevertheless, the laws in some states, and the judicial decisions based thereon, fail to recognize the existence of this need. Furthermore, certain public works, such as sanitary sewers, for example, which are looked on in some states as operations for the abatement of nuisances, are classed in the majority of states as beneficial improvements, and are financed by levies under the third or fourth types.

Levies for the Cost of Constructing Appurtenances to Private Property

A special assessment of the second type would not seem to be an indispensable element in a well designed system of special levies. In fact, the theory on which it is based is tending to be less and less frequently invoked in support of apportionments based on the methods which the theory itself implies. It is true that the

practice of levying the entire cost of a section of sidewalk against the property on which it abuts, even to the extent of taking into account differences in cost from one property to another due to variations in sidewalk widths or in street grades, still prevails over a large part of the country. Resort to this practice has sometimes been sustained by the courts, however, on the ground that it results in assessments in proportion to benefits. On the other hand, the courts in some states have refused to sanction sidewalk assessments regardless of the basis on which they were spread, unless the administrative officials responsible for making the apportionment had certified on the roll that the individual levies were made in proportion to, and were not in excess of, the benefits conferred. In such states, the appurtenance theory of special assessments has disappeared from the law if it ever existed.

Levies Within Benefited Districts in Proportion to Arbitrary Measures

In the third type of special assessment, the concept of benefit, which does not enter into the theory on which the first two types are based, begins to emerge. In actual practice, it is today the dominant form of special assessments in this country for streets and sewers. In a number of states existing general legislation provides that all properties abutting on a so-called "local improvement"—that is, an improvement which is assumed in the law to confer benefits only on abutting property—may be assessed for a share of all or part of the total costs of construction, in proportion to the frontage or to the area of such properties. Frequently, also, special legislation applicable only to the single improvement project named in the act provides that all properties lying within the boundaries of a district set up in the law, and including other than immediately abutting prop-

erties, shall be assessed for construction costs in proportion to the dimensional criteria of street frontage or area, or else in proportion to the valuations at which the properties are assessed for general taxes.

To the extent that the boundaries of the assumed benefit districts established by legislative act conform to the actual districts within which the improvements confer benefits, special assessments of this type accomplish a highly desirable end. They impose the burdens involved in providing the new improvements on the districts within which the benefits fall instead of on the city as a whole. For reasons that will later become apparent, they do not necessarily, however, distribute the burdens on properties lying within the district in proportion to benefits.

In a few states, special assessment laws of this character have been held unconstitutional because they do not result in levies in proportion to benefits. In spite of frequent attacks, they have survived, however, in a large number of states. Among the grounds on which they have been sustained from time to time are the following: (1) that the levies thereunder are not in fact special assessments for benefits, but rather special taxes imposed on a base, and within a district, which the legislature had the right to establish for the purpose; (2) that the laws are an exercise not of the taxing power, but of the police power on which the first two types of special assessments rest; and (3) that the arbitrary criteria to whose use exception was taken had been adopted by the legislature as measures of benefit, and that, in the absence of express proof to the contrary, they are presumptively accurate indices of benefit.

Levies in Proportion to Benefits

Special assessments of the fourth type—those levied in proportion to, and not in excess of, benefits—have come

to occupy the central place in popular thinking and in current writings on the subject. The manifest justice of the principle on which they rest has appealed so strongly to many minds that it has tended to obscure not only the existence of, but even the need for, the other types. From the standpoint of practice, on the other hand, a special assessment levied in harmony with this theory is still the rarest of all types. In its purest form, a benefit assessment is neither more nor less than a tax proportioned to the unearned increment accruing to properties as a result of a certain public improvement or public service, the rate of the tax up to 100 per cent of the increment being determined by the ratio between the public expenditures for the purpose, and the aggregate of all the individual increments resulting therefrom.

The difficulty of determining the boundaries of the area in which this unearned increment will make itself felt, and of measuring the increment for each individual property within that area, accounts for the rarity with which the underlying principle is put into practice. These things can be done—are in fact being done in some places—with reasonable accuracy. The inadequate administrative machinery provided for the purposes in most municipalities, however, has compelled the officials charged with the duty of apportioning benefit assessments to rely on exactly the same dimensional basis of apportionment which the laws of the third type stipulate.

In those states where the courts have held laws which provided for the use of such standards unconstitutional, on the ground that they led to assessments apportioned on the basis of costs rather than benefits, an interesting situation has been created. Under laws establishing benefit as the sole basis for special assessments, administrative officials, of their own volition, have resorted to methods which it is unconstitutional for the legislature

to prescribe. The resulting apportionments even when admittedly made on the identical plan which had previously been set aside, have been sustained, provided they were supported by a certificate from the assessing officials to the effect that the individual assessments were in proportion to, and not in excess of, benefits.

Cost Assessments and Benefit Assessments

It is apparent from the foregoing analysis that the four distinct types of special assessments which exist in legal theory resolve themselves into two major classes from the standpoint of administration. At one extreme, there is the form of special levy which both in theory and in practice is apportioned among the property owners affected on the basis of mathematical functions of costs, such as, for example, the area or the frontage of the properties. At the other, there is the assessment in proportion to benefits. Because, however, of the lag between administration, on the one hand, and economic and legal theory, on the other, the majority of the special assessments which purport to be made in proportion to benefits, are in fact made in proportion to functions of costs. When the problems of administration alone are taken into account, there are therefore only two classes of special assessments, which for the sake of brevity will be referred to hereafter as cost assessments and benefit assessments.

The failure to recognize the existence both in theory and in practice of these two classes is responsible for much confused thinking on the subject. In the course of the widely quoted decision in the Norwood-Baker case, for example, the Supreme Court of the United States said that "the principle underlying special assessments to meet the cost of public improvements is that the property upon which they are imposed is peculiarly benefited, and therefore the owners do not, in fact, pay

anything in excess of what they receive by reason of such improvements."[1] The casual reader might infer from this quotation that the Supreme Court will sustain special assessments only when they are imposed in proportion to benefits. As a matter of fact, the same court has recognized and sustained cost assessments made without reference to benefits in leading cases submitted to it both before and since the Norwood-Baker case.[2]

Nevertheless, the concept of benefit has come to be closely associated with that of special assessments in the minds of the public and of legislators. In the great majority of cases, equity, used in the common meaning of that term, demands that there should be a close connection between the two. The law already recognizes the need in many states. It remains for competent administration to make it a fact.

Certain valid exceptions to this general statement that special assessments should be made on the basis of benefits rather than costs have already been indicated. When a nuisance exists which the responsible property owner neglects to abate, it is manifestly fair for the municipality which is compelled to abate the nuisance under the police power to charge such owner with the costs in full. In case the nuisance extends over or in front of a group of properties, then the apportionment of total costs among them in proportion to frontage or area or any other valid function of costs is also fair.

The first cause of confusion is the fact that many municipalities, in the absence of an administrative organization competent to estimate benefits, have attempted to apportion assessments for beneficial improvements by methods which are identical with those used for distributing the costs of abating nuisances. An example of the

[1] 172 U. S. 269; 19 Sup. Ct. 187; 43 L. Ed. 443, affirming 74 Fed. 997. McQuillin, *Municipal Corporations* (1913), Vol. V, p. 4330.
[2] 96 U. S. 97; 181 U. S. 324.

manner in which this confused thinking results in cost assessments rather than benefit assessments is the area plan of apportionment for storm sewers. This plan distributes the entire cost of constructing the sewer over the properties lying within the drainage area on the basis of the number of square feet in each property. If the higher lying properties within the watershed have suffered no inconvenience from storm waters, they will receive no benefit whatever from the new sewer. The benefit accrues primarily to the lower lying properties which prior to the new construction work had been subject to overflow with every heavy rainfall; secondarily, to properties both within and without the drainage area whose accessibility had been adversely affected from time to time by the presence of flood waters along such arterial highways as pass through the low lands. In spite of the fact that a large part of the water, the removal of which the new sewer is designed to effect, comes from the properties in the highlands, an argument in support of spreading the costs over the highlands based on the theory that they are responsible for abating a nuisance created by their storm run-off is completely valid only in a few instances, and is wholly or partially invalid in the great majority of instances. It is only in cases where the use of impervious materials for roofing and paving in congested sections have markedly increased the run-off from the highlands, that the question of abating a definite nuisance enters in. Even where the nuisance factor is clearly present as regards the highlands, the benefit factor is invariably present in the lowlands. In such a case, the problem would have two separate and distinct phases—that of apportioning the costs of abating a nuisance on the highlands and that of assessing benefits in the lowlands. It is hardly probable that the use of the square foot method will result, first, in an equitable division between the two major parts into

which total costs must be divided, and second, in a just apportionment of those two parts among the properties affected.

A second frequent cause of confusion is the fact that the laws fail to distinguish between public works whose primary purpose is to abate nuisances, and those which confer benefits on the property served. Sewage disposal plants are sometimes included among the improvements which confer benefits when as a matter of fact, their sole purpose and effect is to abate a nuisance. When cities are small and lie at some distance from one another, the nuisances created by outlets for raw sewage are negligible. As the cities grow and draw closer together, these things become distinct nuisances to small portions of the cities which are responsible for creating them, or to other cities. Such benefits as accrue from the erection of sewage disposal plants accrue to those who live in the vicinity of the former sewer outlets, or to the inhabitants of cities down stream from the city which provides the new facilities. Just as a private citizen cannot equitably call on his neighbors to reimburse him on the grounds that he has benefited them by the abatement of a nuisance for whose existence he was responsible, so a city or a portion of a city cannot hope to collect benefits from those who had been offended by noxious odors or polluted streams prior to the erection of the disposal plants. In short, those who are benefited by such plants cannot in justice be made to pay; those who should pay are not benefited. No question of benefit assessments enters into the financing of such plants. They are proper subjects for general or special taxation or for cost assessments.

Legal Limitations on the Use of Special Assessments

A municipality has no right to levy special assessments save to the extent, for the purposes, and in the manner

which the legislature has seen fit to prescribe in the enactments by which these powers are delegated. In some states, furthermore, the legislature is held to have no general constitutional rights to authorize cities to resort to special assessments for any purpose. In South Carolina, for example, every one of the large number of special laws conferring on specified municipalities the right to use special assessments for certain purposes has been preceded by a constitutional amendment, limited in scope, which authorized the enactment of that law. In other states, the legislature is empowered to enact laws permitting special assessments only within narrow fields, as in Virginia, where the constitution has been construed as authorizing the use of special assessments by cities only for sewers, sidewalks, and alleys.

Even in those states where broad powers of discretion are vested in the legislature, that power is exercised only too frequently by resort to piecemeal legislation. Charter provisions vary from city to city; the laws applying to one class of cities vary from those for other classes; and worst of all the administrative procedure prescribed in one city for one type of improvement may vary in every important detail from that for every other type of improvement in the same city. The existence of these variations among the powers conferred on cities of different sizes in the same state, and among those delegated to the same city in connection with different types of improvement, has led a number of commentators to assume that they are based on fundamental legal or economic principles. No such principles are in fact involved in the great majority of cases, the differences in law being based solely on the failure of the legislature to see the problem as a whole. Such valid differences in principles as occur in a limited number of cases have already been touched on in preceding sections of this chapter.

The influence on finance administration of these variations in the law has been far reaching. It may happen that a city is required to levy special assessments for sidewalks on the basis of the actual costs of the work done in front of each property; for water mains on the basis of frontage; for sewers on the basis of area; and for street paving on the basis of proximity. When that condition exists, it frequently happens, moreover, that the rights and remedies of property owners as regards the initiation or veto of a project, or the time and method of payment are different for each of those improvements. In such cases, careful planning which is the foundation of adequate administration becomes practically an impossibility whether from the standpoint of the engineer or of the department of finance. Each of the improvements listed is essential in the development of a new residence section, for instance. In the nature of things economy demands the laying of sewers and water mains in advance of street paving and sidewalks. Nevertheless, the differences in the administrative procedure prescribed by law for each of the four types of projects may operate in such a manner as to make a reversal of the proper order almost inescapable, to the physical inconvenience and financial detriment of the citizens concerned.

Public Improvements Financed by Special Assessments

Enough has been said in the preceding section to indicate that there is no uniformity in the legal provisions concerning the purposes for which special assessments may be employed. They vary widely from state to state, and quite as widely from city to city within certain of the states. It would be not only laborious but also to a large extent barren of pertinent information to attempt to list either by states or cities the extremely wide and varied objects for which special assessments may be

levied. A few examples will serve the purposes of this chapter.

Massachusetts, in a general law, provides simply that special assessments—or betterments as they are there termed—may be levied for any public improvement "whenever a limited and determinable area receives benefit or advantage, other than the general advantage to the community."[1] This provision, unfortunately, has been limited in its application because of the existence of special provisions in the charters of a number of cities.

New Jersey achieves almost similar breadth of purpose in a general law which provides that special assessments may be employed in financing all or part of the cost of opening, extending, widening, grading, paving, repaving, curbing, recurbing, guttering and reguttering any street, road, avenue, alley or other public highway or portion thereof; constructing, reconstructing, enlarging or extending any sewer or drain or any works for the sanitary disposal of sewage or drainage; improving or reimproving beaches or waterfronts, and protecting property against damage by the ocean or other waters, together with the filling and grading necessary to such improvements; deepening, widening or improving any waterway; installing service connections and such other works as may be necessary for supplying water, gas, light, heat, or power from "works owned by the municipality or otherwise."[2] The basis of the assessments levied for these purposes is to be the benefit conferred. Sidewalks, it will be observed, are not included in the foregoing list. They are covered in another section of the same law which provides that a municipality may construct, reconstruct, pave, repave, curb, recurb, improve and repair sidewalks "at the cost and expense of

[1] Massachusetts General Laws 1921, Chapter 80, Sec. 1.
[2] New Jersey Laws of 1917, Chapter 152, Art. XX, Sec. 1.

the owner or owners of the land in front of which any such improvement shall be made."[1]

The New Jersey list, broad as it is, by no means covers the entire range of purposes for which special assessments have been used, or for which their use has been seriously recommended. In New York City, as well as in other cities of the country, both parks and playgrounds have been financed in whole or in part by the use of special assessments. The costs of installing ornamental lighting systems and high pressure fire fighting systems have been financed by special assessments in a number of cities. In San Francisco, special assessments were levied in connection with the Twin Peaks extension of the municipally owned traction lines; they are to be used in Detroit in building the rapid transit system;[2] and their use is being seriously considered for similar purposes in New York City and Chicago. The Federal Electric Railways Commission, furthermore, in 1920 recommended the use of special assessments for meeting the cost in whole or in part of extensions even to privately owned rapid transit systems.[3]

Current Services Financed by Special Assessments

It must not be inferred from the foregoing paragraphs, however, that the use of special assessments in this country has been limited simply to the financing of public improvements. Far from it. Special assessments, based in some cases on the police power, in others on the taxing power, have been used to meet current expenditures for the repair, maintenance, cleaning, sprinkling and oiling of streets, the flushing of sewers, snow removal, the cutting of brush and weeds on vacant lots, the upkeep of parks, the planting and care of shade trees along curb lines, moth extermination, street lighting, and the main-

[1] *Ibid.*, Art. XXV, Sec. 1.
[2] See below, Chapter XV, pages 512 ff.
[3] Report of the Federal Electric Railways Commission, 1920, Sec. XI.

tenance and operation of sewage and garbage disposal plants. In 1923, 91 of the 248 American cities with a population of 30,000 or over, levied special assessments for current expenses.[1]

The opinion is quite generally held that special assessments should not be levied for current expenditures, aside from those which plainly involve reimbursements for the abatement of nuisances as in the case of snow removal from the sidewalks in front of vacant lots or the cutting of weeds on vacant lots.

Those who take this attitude overlook the fact that certain current services, such as street sprinkling for instance, confer a distinctly localized benefit on property in the vicinity, and that the courts in a number of states have sustained the legality of assessments made for that purpose.[2] Similar rulings have been made, though somewhat less frequently, relative to street cleaning. The current costs involved in the maintenance and operation of ornamental lighting systems and high pressure fire fighting systems would seem also to confer localized special benefits in excess of the general benefits accruing to the city as a whole, and special assessments for benefits could logically be used for their support. There is no hard and fast rule, either of a legal or an economic nature, which would warrant the restriction of special assessments solely to benefits arising from public improvements. In fact, it may well be that the ends of an equitable distribution of tax burdens can best be served by a considerable extension of the principle of benefit assessments into the field of current services.

Reimprovements and Benefit Assessments

The advisability of the use of special assessments has been called into question not alone, however, in connec-

[1] Bureau of the Census, *Financial Statistics of Cities*, 1923, Table 7.
[2] McQuillin, *Municipal Corporations* (1913), Vol. V, Sec. 2036.

tion with current services, but also with regard to certain types of improvements. This statement applies with special force to reimprovements. The practice of New Jersey in permitting assessments for every type of repaving and other reconstruction is by no means general. Legal provisions in a number of states, and court decisions in a few, expressly forbid this means of financing for reimprovements on the ground that no new values are created thereby. This objection seems to be based on an erroneous conception of the nature of benefits. A property may be benefited not only by the creation of new value but also by the maintenance of preëxisting value. In fact, the first legally authorized use of benefit assessments in England seems to have been in connection with the construction or repair of dikes and ditches in Romney Marsh which had been destroyed or damaged by the encroachment of the sea. Because the fiscal system of that period did not provide revenues sufficient for carrying out extensive public works, the landowners benefited by the preservation of values contributed to the costs in proportion to the area of the land protected from inundation—a crude measure of benefit not dissimilar to those which are most widely used in this country today. There would seem to be no valid basis, therefore, either in legal precedent or in economic law, for the rigid exclusion of reimprovements from the operation of special assessments laws.

Legal Limits on the Amounts Levied

In those states where the special assessments authorized are levies for costs rather than for benefits, the limit placed on the aggregate assessments for any project is the cost of that project or some arbitrary percentage thereof. The amount of the individual assessments against properties affected is usually governed entirely by the arbitrary criteria established in the law. In those

states where the law requires the apportionment of assessments in proportion to benefits rather than costs, individual assessments are not permitted to exceed the benefits conferred by the improvement, and the aggregate assessments may not be in excess of the total costs, or in some cases, a specified percentage thereof. In some cases, further limitations on individual assessments are set up. In New York City, for instance, it is provided that the officials in charge of apportioning benefit assessments "shall in no case assess any house or lot, improved or unimproved lands, more than one-half the fair value of such house, lot, improved or unimproved lands, at the time of the confirmation of the assessment."[1] The words "fair value" have been construed by the courts to mean the value at which the property was assessed for taxation on the general tax roll; or, in case the property in question is exempt from general taxation, then the value established by a special appraisal made for the purpose of establishing the fair value. A fourth type of limit, based on time rather than amount, is found as a rule only in charter provisions stipulating that no property shall have a special assessment levied against it for any purpose until a specified period shall have elapsed after the last preceding levy against it was confirmed.

The limits based on costs and benefits are founded on general concepts of equity and justice. That aggregate assessments based on the costs of abating nuisances should not exceed the costs of abatement can hardly be denied. That individual assessments for benefits should not exceed the value of the benefits conferred is equally axiomatic. The use in combination, however, of the dual limits of aggregate costs and individual benefits in connection with beneficial improvements, may in some cases restrict both individual and aggregate assessments to amounts considerably below the benefits conferred.

[1] New York City Charter, Chap. XVII, Title 2, Sec. 947.

The construction of a bridge or a causeway across a minor watercourse may confer, on the area opened up for residential or other development thereby, benefits far in excess of the costs of the improvement in question, because benefits from the entire network of public highways previously constructed in the main part of the city may now flow out over the area opened up by the comparatively minor new construction. This fact, that benefits may in certain cases exceed costs, has apparently not been taken into account in any law or in any judicial decision. A somewhat analogous principle has been invoked, however, in a Massachusetts decision which has been summarized by McQuillin as follows:

> Under a statute creating a corporation to build a railroad passenger station and requiring the extension of streets and widening of one to accommodate the public in the use of the station, benefits accruing to the land by reason of the construction of the station by the corporation may be considered as well as those derived from widening and extending the streets, and such does not invalidate the statute.[1]

The existence in the law of the other two limits based on valuation or on time is directly traceable to the need for establishing safeguards against abuses by careless, incompetent, or unscrupulous officials. The construction of assessable improvements far in advance of any need for them, and the piling up of successive assessments on a given area for improvements undertaken largely to make work for political contractors have in the past brought about crises in a number of cities. This was notably true in sections of New York and New Jersey in the fifteen or twenty years following the Civil War. The attendant financial embarrassment both of municipal governments and property holders led to the enactment of laws designed to prevent the recurrence of such conditions. It is an interesting fact, however, that in

[1] McQuillin, *Municipal Corporations*, Vol. V, p. 4388. Based on 180 Mass. 274; 62 N. E. 397; 62 L. R. A. 144.

many jurisdictions the need for such limits has not arisen. Under an adequate system of municipal finance administration coupled with the intelligent planning of public improvements, it is conceivable that the need for them would never arise.

Legal Definitions of Costs

Definitions of costs as a limiting factor in the levy of special assessments vary widely from state to state and from city to city. At a time when municipal engineering staffs were nonexistent or rudimentary in form, the amounts paid to the contractors for the construction of a certain public improvement constituted practically the sole costs. This was especially true in those sections of the country where the contractor was paid out of cash derived from assessments levied on, and collected from, benefited property owners in advance of the completion of the project; or where he received in return for his work liens against the benefited properties which he had to collect at his own expense. Legal provisions based on this state of affairs, in which assessable costs are limited to the amounts paid the contractors, still survive in some states.

As a result of recent developments in special assessment administration, however, it has become apparent that costs must be defined so as to include a number of items over and above the sums paid to contractors. Among the direct expenditures of the municipality which have come to be considered as valid additions to the aggregate to be levied against benefited properties are the following: engineering costs, inspection costs, and the expenses of levying the assessments and of preparing and selling the necessary bonds. In states where the work is financed by resort to temporary loans pending the levy of special assessments, subsequent to the completion of the work, and the issuance of bonds based

thereon, interest on those loans is also included in the aggregate of the assessable costs. In some cases, either by legal provision or by administrative procedure, these items are covered by the addition of an arbitrary percentage to the contract cost. This practice can hardly be recommended. Under a proper system of accounts, the exact amount of all these items can be readily ascertained for inclusion in the levy.

One interesting result of the confusion which exists in many jurisdictions between special assessments for costs and special assessments for benefits is the fact that the cost of paving street intersections is frequently deducted from the aggregate costs of a street improvement project before the levy is made. This procedure is based on the fallacious assumption that benefits as opposed to costs can be measured by the frontage of abutting properties. Since intersections do not abut on privately owned property, the costs are assumed by the city at large. One has only to visualize a paving project on a dead-end residential street where the only benefit from the improvement must rest locally in order to see the fallacy involved in this practice. The benefit of the paving to properties fronting on the street would of course be materially reduced if intersections were left unpaved. If it were possible to find some means of measuring differences in benefits accurately, it would no doubt be found that the benefits accruing from paving a street as a unit would exceed those from paving it by block fronts and leaving intersections unimproved by considerably more than the cost of paving the intersections.

Definitions of Benefit

A search of existing laws for adequate definitions of benefit is quite as barren of results as a similar search for definitions of taxable value.[1] Judicial decisions, how-

[1] See above, Chapter XI, pages 310 ff.

ever, in some states have gone far toward establishing the enhancement in value of benefited properties as the measure of the benefit resulting from the improvement. A Michigan court, for instance, has held that the doctrine of benefit assessments "is based for its final reason on enhancement of values." [1] A Colorado court has held similarly that special assessments "are upheld upon the theory that the special benefits inuring to the property assessed are equal to the burden therefor imposed"; and that, in order to be valid, the improvement "must specially enhance the value of the property against which such assessment is levied at least equal to the amount so assessed." [2] An Alabama court has held that special assessments on benefited property shall not be "in excess of the increased value of such property by reason of the special benefits derived from such improvements." [3]

Probably the longest strides that have yet been made toward establishing an economically sound basis for the apportionment of benefit assessments are to be found in a Massachusetts decision which lays down the following rules:

> The rules by which the amount of benefit conferred upon land by a public improvement is to be ascertained, when that question arises as a matter of fact, are the same as those by which land values are determined in any other connection. The inquiry is, how much has the particular improvement added to the fair market value of the property as between a willing seller and a willing buyer with reference to all the uses to which it is reasonably adapted and for which it is plainly available, prospective as well as present, by strangers as well as by the owner? Chances and probabilities of future use, as sufficiently near in time and definite in kind to be of practicable importance, enter into present market value, and so far as they enhance or diminish it, are to be given full weight. But where they are so remote as to rest chiefly in the imagination, and do not in fact influence the price which

[1] 173 Mich. 201; 139 N. W. 69. McQuillin, *Municipal Corporations*, Supplement, Vol. 8, p. 7828.

[2] 55 Colo. 476; 136 Pac. 78. McQuillin, *Municipal Corporations*, Supplement, Vol. 8, p. 7857.

[3] 194 Ala. 559; 69 So. 598. McQuillin, *Municipal Corporations*, Supplement, Vol. 8, p. 7856.

customers would be willing to pay in a present sale, they cannot be the basis of a determination of benefit or value.[1]

Types of Property Subject to Special Assessment

With reference to the types of property subject to special assessment, existing laws and charter provisions may be divided into three broad classes. One of these classes includes the comparatively few enactments which stipulate that special assessments within a specified district shall be levied in proportion to the valuations at which the properties within that district are assessed for general taxes. A second class includes the large number of existing statutes and charters which specify "real estate," "land and real estate," or "house, lot, improved or unimproved lands," as the property which shall be subjected to special assessments. The third class is composed of those in which land is specifically mentioned as the type of property which receives benefit, and against which special assessments may be levied.

The first of these groups provides in effect for special taxes against land and the improvements thereon rather than special assessments. The remaining groups, in spite of differences in terminology, are practically everywhere so administered that special assessments are levied against land alone. In short, special assessments as opposed to special taxes, are imposed against land, whether the levy be a cost assessment or a benefit assessment.

Methods of Apportioning Benefit Assessments

It should be clear from the foregoing discussion that law and administrative procedure have not in all cases walked hand in hand with the underlying theory on which benefit assessments are based. In many jurisdictions, the methods employed by administrative officials in the ap-

[1] 210 Mass. 151; 96 N. E. 59. McQuillin, *Municipal Corporations*, pp. 7858-7859.

portionment of such assessments, whether under the mandate of the law or of their own volition, mark little or no advance over those employed in connection with the public works undertaken for the protection of Romney Marsh along the English Channel some seven hundred years ago.

Under the practically universal dual limit established by law for the apportionment of benefit assessments, that is, the use of total cost or a percentage thereof as a limit on the aggregate assessments, and of benefit as the limit on individual assessments, the difficulties which arise in administration fall under three heads. The first of these involves decisions as to whether the benefit resulting from the improvement under consideration is purely local or whether it may extend over a considerable area. In the latter case, a portion of it may extend to the city at large, and it may become necessary to determine how much of the cost is a proper subject for general taxation. The next question which arises is that of establishing boundaries for the area or areas of special benefit as distinguished from the general benefit. The final problems to be solved are those which arise in connection with distributing the share of total costs assigned to the areas of benefit among the individual properties lying within those areas in proportion to the benefits received.

Local, District, and General Benefits

Under existing conditions, the task of dividing the total costs of a project in proportion to the benefits which fall on abutting properties, those which benefit non-contiguous properties in a larger area, and those which benefit the city as a whole, is a most difficult one in many American cities. Consequently, state legislatures have endeavored to solve the problem for them by resort to arbitrary provisions. In many states, it is assumed that

benefit is always local and affects abutting property only. In other states, the municipal governing body is given power to decide by resolution that a certain percentage of the costs of a given project, or of all projects of a given type, shall be borne by the city at large, the remainder to be assessed against abutting properties in proportion to benefit. The first of these methods is, of course, indefensible as a general proposition. Whether or not the second will give better results depends largely on the character of the investigation made by administrative officers as a basis for the decision of the city council.

It must not be assumed, however, that even the cruder of these plans always results in inequitable assessments. If the method had not given at least a rough approximation to justice in the distribution of burden in the great majority of cases, it is probable that the courts would long ago have declared it violative of constitutional safeguards. The use of the method is generally restricted to what have come to be known in the law and in court decisions as local improvements, that is, improvements which confer a benefit on abutting property only.

Examples of improvements of this type are a sanitary sewer and a water main extension which serve one residential street only. In many cases there can be little or no benefit resulting from such projects which will fall on properties not served directly by the service laterals. Similarly, sidewalks and street paving along residential streets with little or no through traffic, confer on abutting property local benefits substantially in excess of district or general benefits, and sufficiently large to be measurable.

It is obvious, of course, that public improvements within these classes do not by any means cover the entire range of beneficial public works for which benefit assessments are employed. The moment a sewer, a water main,

or a highway along a residential street, serves as the basis for other laterals—the moment, to resort to a physiological figure, they cease to be capillaries and take on an arterial or venous nature—the benefits resulting from their construction tend to make themselves felt over an area considerably larger than that comprised within the abutting properties. In rare instances, it may extend to the entire municipality in which case the benefit is general. The existence of a district or of a general benefit does not, of course, preclude the existence at the same time of a distinct and measurable local benefit on abutting properties substantially in excess both of district benefits and of general benefits.

This fact has been recognized in both law and administrative procedure. In Charleston, South Carolina, for instance, abutting properties may be assessed for the total cost of sanitary sewers up to a diameter of twelve inches. If the situation demands the construction of a larger sewer along any street in order to serve as a trunk for other laterals, the difference between the actual cost of the sewer constructed and the estimated cost of a twelve inch sewer must be assumed by the city at large. In New Jersey, all municipalities are permitted to divide the cost of trunk sewers into three parts: one to be assessed locally against abutting properties directly connected with the trunk sewer; another to be distributed over the district served by laterals leading into the trunk sewer; and a third, at the option of the governing body to be assumed in the general tax burden.

Projects involving the widening of streets or the opening of new streets through built up portions of cities afford excellent examples of local, district, and general benefits. In connection with a proposed twelve block extension of Sixth Avenue on Manhattan Island, New York City, designed to give that thoroughfare a better southern outlet across the existing city plan, the board of esti-

mate and apportionment resolved that "40 per cent of the entire cost and expense of these proceedings . . . shall be placed upon the City of New York; 40 per cent upon the Borough of Manhattan, and the remaining 20 per cent upon the area of assessment."[1] The map accompanying the resolution indicates that the area of assessment, irregular in shape, extends about 39 blocks north of the northern end of the proposed street opening; seventeen blocks south of the southerly end; and from four to eight blocks beyond the abutting properties on either side of it.

It need hardly be pointed out that street openings do not invariably result in general benefits so extensive as those determined by the board of estimate and apportionment in the example just cited; or that district benefits do not always extend over a district so large as Manhattan Island. In a proceeding for the acquisition of land for the opening of a new street, the same board adopted a resolution to the effect that "the whole of such cost and expense, including the expense of the bureau of street openings, the cost and expense incurred by the president of the Borough of Queens in the preparation of rule, damage and benefit maps . . . ; and all other expenses and disbursements . . . shall be assessed upon the property deemed to be benefited thereby." The accompanying Figure 24 is a reproduction of the official map of the area of benefit which was adopted in connection with the resolution.[2]

Parks, playgrounds, and civic centers are types of public improvements which similarly confer benefits not alone on abutting properties but over extensive districts as well. Figure 25 illustrates the judgment of the governing body of New York City as to the area against

[1] Board of Estimate and Apportionment (New York City), *Minutes of Meeting*, June 19, 1925, pp. 5352 ff.

[2] Board of Estimate and Apportionment (New York City), *Minutes of Meeting*, May 1, 1925, pp. 3390 ff.

which benefit assessments aggregating 20 per cent of the total costs of acquiring a playground should be assessed in proportion to benefits, the remaining 80 per cent to be assessed in proportion to the assessed value of real estate in a still larger district, namely the Borough of Manhattan.[1]

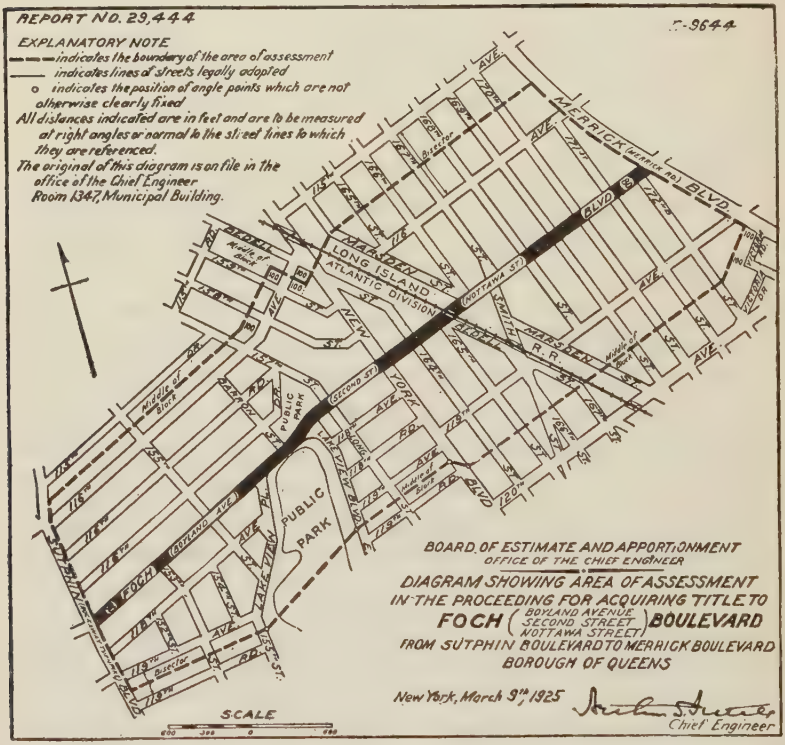

REPORT NO. 29,444
F-9644
EXPLANATORY NOTE
indicates the boundary of the area of assessment
indicates lines of streets legally adopted
o indicates the position of angle points which are not otherwise clearly fixed
All distances indicated are in feet and are to be measured at right angles or normal to the street lines to which they are referenced.
The original of this diagram is on file in the office of the Chief Engineer Room 1347, Municipal Building.
MERRICK (MERRICK RD.) BLVD.
LONG ISLAND R.R. ATLANTIC DIVISION
MONTAUK ST.
NEW YORK AVE.
(SECOND ST.)
PUBLIC PARK
(CORTELYOU RD.)
(CORTELYOU AVE.)
Ed FOCH (FOCH BLVD.)
BOARD OF ESTIMATE AND APPORTIONMENT
OFFICE OF THE CHIEF ENGINEER
DIAGRAM SHOWING AREA OF ASSESSMENT
IN THE PROCEEDING FOR ACQUIRING TITLE TO
FOCH (BOYLAND AVENUE, SECOND STREET, NOTTAWA STREET) BOULEVARD
FROM SUTPHIN BOULEVARD TO MERRICK BOULEVARD
BOROUGH OF QUEENS
New York, March 9th 1925
Chief Engineer
SCALE

FIGURE 24. Area of Benefit Established in New York City in a Proceeding To Open a New Street.

The construction of new rapid transit lines or of extensions to existing lines also confer local, district, and general benefits. The area of benefit may extend for some distance on either side of a new line and even far-

[1] Board of Estimate and Apportionment (New York City), *Minutes of Meeting*, May 29, 1925, pp. 4384-4385.

ther beyond its terminus. Furthermore, there may be an area of benefit along existing lines in the heart of the city several miles distant from an extension which opens

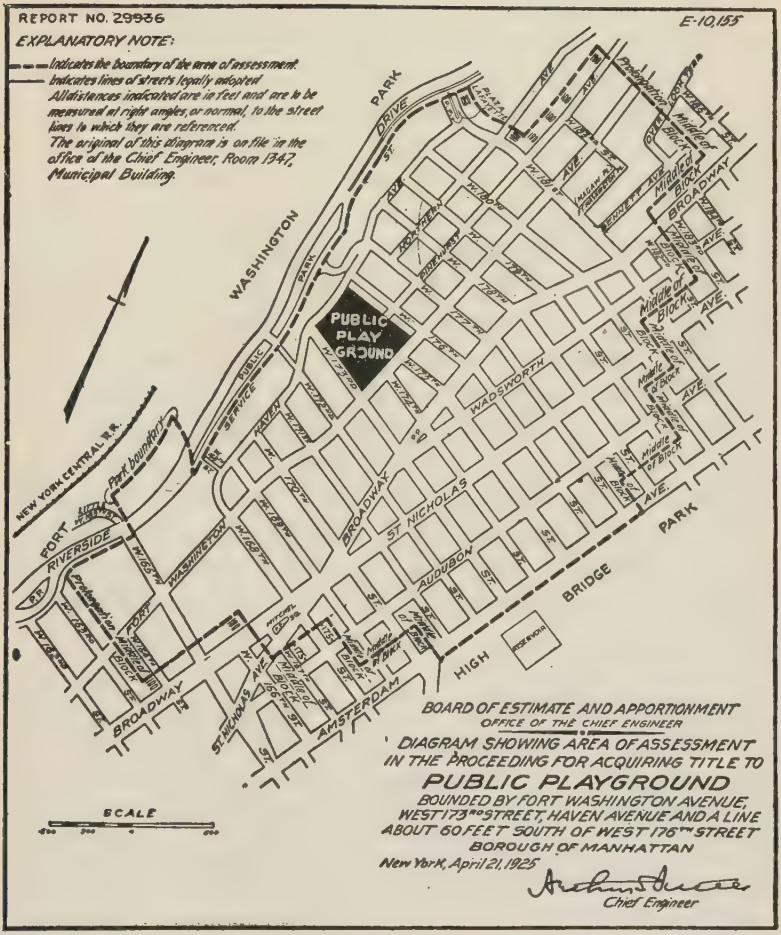

REPORT NO. 29936
E-10,155
EXPLANATORY NOTE:
Indicates the boundary of the area of assessment.
Indicates lines of streets legally adopted
All distances indicated are in feet and are to be measured at right angles, or normal, to the street lines to which they are referenced.
The original of this diagram is on file in the office of the Chief Engineer, Room 1347, Municipal Building.
PUBLIC PLAY GROUND
WASHINGTON
PARK
DRIVE
BROADWAY
ST NICHOLAS
AUDUBON
WADSWORTH
HAVEN
BRIDGE
HIGH
AMSTERDAM
NEW YORK CENTRAL R.R.
FORT WASHINGTON AVE
RIVERSIDE DR
BOARD OF ESTIMATE AND APPORTIONMENT
OFFICE OF THE CHIEF ENGINEER
DIAGRAM SHOWING AREA OF ASSESSMENT IN THE PROCEEDING FOR ACQUIRING TITLE TO
PUBLIC PLAYGROUND
BOUNDED BY FORT WASHINGTON AVENUE, WEST 173rd STREET, HAVEN AVENUE AND A LINE ABOUT 60 FEET SOUTH OF WEST 176th STREET
BOROUGH OF MANHATTAN
New York, April 21, 1925
Chief Engineer
SCALE

FIGURE 25. Area of Benefit Established in New York City in a Proceeding To Acquire a Public Playground.

up new trade territory. It may conceivably happen that this central zone of benefit will be entirely detached from the other zone along the new extension itself. When the rapid transit lines are elevated above the surface of the

streets or carried in subways beneath them, so that stations occur only at intervals of several blocks, the benefit will tend to be more marked in the immediate vicinity of the stations than elsewhere along the lines. If, furthermore, the lines are designed to provide both express and local service, the benefit in the vicinity of express stations will tend to be considerably higher than at local stations. Several studies made in New York City illustrate these points.[1]

The foregoing discussion of local, district, and general benefits has been illustrated largely by examples drawn from New York City. This is due in part to the fact that the volume and the magnitude of the problems in that city have compelled the development of a more complete administrative procedure there than in most cities; in part also to the fact that the material was readily available in printed form. A number of other cities have developed similar practices, and the principles on which they are based have made their way into judicial decisions in other sections of the country. A recent decision by a United States Circuit Court of Appeals in a Kansas City case sums up these principles as follows:

> It is well settled that the cost of local improvements such as street grading and paving, curbing and guttering, and laying of sidewalks may be assessed against the abutting property. . . .
>
> Over against strictly local public improvements, the cost of which may be assessed against the adjacent property specially benefited thereby, there are public improvements of such general character that the cost of making them may not be legally assessed upon anything less than all the property of the municipality. . . .
>
> Between these there is a class of public improvements the cost of which, while not confined to adjacent or abutting property, may be assessed upon something less than the whole of the municipality because specially benefited. . . .[2]

[1] City Club of New York, *Building of Rapid Transit Lines in New York City by Assessment Upon Property Benefited*, 1908; and *Report of Chief Engineer, Board of Estimate and Apportionment of City of New York*, 1916, pp. 111-118.

[2] 2 Federal Reporter (2nd Series) 676.

Benefit District Boundaries

Under existing administrative procedure, two types of problems arise in connection with the establishment of boundaries for the zones within which benefit assessments shall be levied. The first involves the definition of abutting property against which purely local benefits are to be assessed. The second is concerned with the establishment of limits within which properties are to be subjected to district benefit assessments. As has been previously pointed out, many laws governing special assessments recognize local benefits only, and prescribe the limits within which benefit or cost assessments shall be made.

Where the laws themselves contain administrative details, the rear lines of abutting properties, regardless of the extent to which adjoining properties may vary in depth, are usually established as the boundaries of the zone of local benefit. Where discretion is vested in the administrative authorities, an arbitrary line lying half way between the street in which the improvement lies and the nearest parallel or approximately parallel streets is sometimes used in lieu of rear lot lines as the boundary of the zone of benefit. Figure 26 is designed to illustrate the wide variations between the boundaries of the zones of benefit which would be established in a hypothetical case by the two rules. The heavy solid lines running along the rear lot lines of the individual parcels abutting on Washington Street indicate the boundaries under the first system; the broken lines bisecting the blocks under the other.

In block 106 in the figure, the zones established by the two lines are identical except for the fact that lot 11 is included in one but excluded from the other. In block 149, in which the rear lines of lots are established by an old property line which crosses the block diagonally, the zone boundaries established by the alternative methods

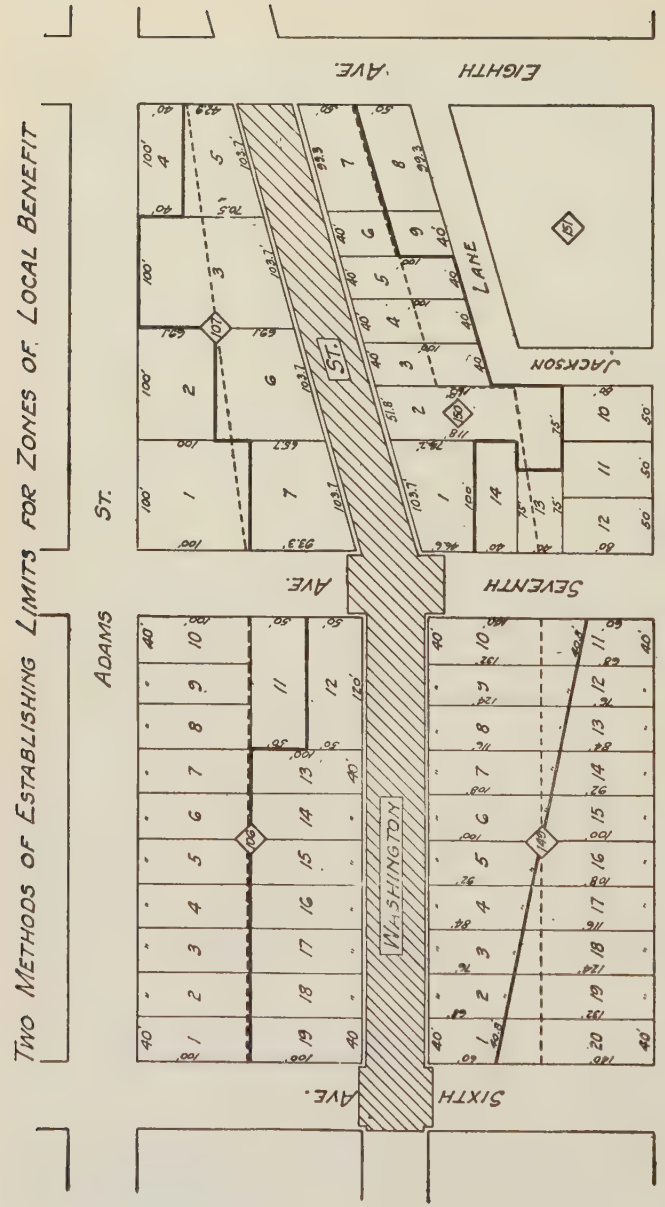


FIGURE 26. Hypothetical Case Illustrating Two Methods of Establishing Limits for Zones of Local Benefit.

consist of two straight lines crossing one another at an acute angle. In blocks 107 and 150, the lines indicating the zones of benefit are decidedly dissimilar in every respect. Furthermore, in case Adams Street were to be paved, all of lot 3 in block 107, which runs through from street to street, would again be included in the zone of benefit if rear lot lines were taken as limiting that zone, while only that part of it lying north of the broken line would be assessable under the other system. A similar situation would arise with respect to lots 2, 3, 4, and 5, of block 150, if Jackson Lane were to be improved.

Block 106 may be taken to illustrate what would happen in case Sixth and Seventh avenues were to be paved. If rear lot lines of abutting properties were to be taken as the zone boundary for benefit from Seventh Avenue, lots 10, 11, and 12 would bear the assessment for the entire block front. If a line half way between Sixth and Seventh avenues were to be used, the assessment would be distributed over lots 6, 7, 8, 9, 10, 11, 12, 13, and 14. For Sixth Avenue, the burden would be borne in one case by lots 1 and 19; in the other by lots 1, 2, 3, 4, 5, 15, 16, 17, 18, and 19. In short, after the four streets bounding block 106 had been paved, every lot without exception would have been subjected to benefit assessments for one of the streets and for one of the avenues under the middle line method. Only five of the lots on the other hand would have been assessed for both street and avenue paving under the rear lot line plan, the remaining fourteen lots being assessable only for street paving and not for avenue paving.

The advantages and disadvantages of the two methods will be touched on more at length in the section of this chapter dealing with the apportionment of benefit assessments among the individual properties which may reasonably be assumed to be benefited.

Where the law recognizes the existence of benefits

which do not fall on abutting or adjacent property, the establishment of the area of benefit is an extremely difficult one. In many cases the methods employed are largely arbitrary, the boundaries of the benefit district being established at a fixed number of blocks or at a fixed distance from the improvement on every side of it. Under present administrative procedure, probably the best practice which has yet been developed is that of New York City. It is based on a study "of the trend of travel, transportation lines and location of elevated or subway stations, as well as parks, and business centers, always having in mind, whether or not the improvement will specially benefit the property lying beyond the limits of direct benefit."[1]

Methods of Distributing Assessments in Proportion to Benefits Conferred on Individual Properties

In the section of this chapter dealing with the types of special assessments, reference has already been made to the use of frontage and area as arbitrary measures of benefit. The previous chapter dealt at some length with the difficulties encountered by assessors in the use of frontage or area for purposes of valuing lands for taxation.[2] Since these criteria have been found inadequate not only by assessors, but also by appraisers, for use in the comparative valuation of all but a very few classes of urban land; and since benefit is coming to be more and more clearly recognized by the courts as an enhancement in value, it must necessarily follow that frontage and area alone are also inadequate as measures of comparative benefit. The use of area in connection with sewer construction, and of frontage in connection with street paving or sidewalks, may be defended for use in cost assess-

[1] William C. Ormond, *Assessments for Local Improvements* (Paper No. 89 presented May 27, 1914, before the Municipal Engineers of the City of New York), p. 26.

[2] See above, Chapter XI, p. 345.

ments. They may even, in the absence of better methods, be defended as rough approximations to justice in benefit assessments. Any municipality, however, which has been granted a certain amount of freedom of action by state law and which has progressed to the point of wanting something better than rough approximations, is justified in discarding methods based simply on frontage or on area in the apportionment of benefit assessments.

Those cities which have reached this stage have resorted to administrative devices comparable to the depth curves used in the valuation of land for taxes. In some cities, as in Denver or in the cities in the state of Washington, the depth curves have not yet evolved fully. Area and frontage are both given weight in the rules in use; but proximity which the assessors have found to be so important a factor in urban values—and therefore in the enhancement of values—is still handled by the zone method, rather than by true depth curves. In Seattle, for instance, the so-called 4-3-2-1 rule, long used by real estate men in New York City in the valuation of long and short lots, has been adapted for use in apportioning special assessments. Under this rule in its original form 40 per cent of the benefit is assigned to the twenty-five foot zone nearest the street line; 30 per cent to the next twenty-five feet; 20 per cent to the third twenty-five foot zone; and 10 per cent to the last zone in a 100 foot lot. Seattle has modified it slightly in form. In Denver, a 150 foot lot is taken as the unit depth. It is divided into six twenty-five foot zones to which the following percentages are assigned: 35, 25, 17.5, 12.5, 7.5, and 2.5 per cent respectively. While rules of this type represent steps in the right direction, they are still far from adequate for reasons already made clear in the previous chapter.

The city engineer in Baker, Oregon, has developed a unique type of depth curve for use in apportioning benefit assessments. It varies in two particulars from the

usual type used in the valuation of land for taxation. It is based on a simple arithmetical progression, and it distributes value not over a unit foot of standard depth as in the case of the depth curves discussed in Chapter XI, but over the depth, whatever it may be, intervening between the street line of the improved street and a line midway between that street and the nearest parallel street. The rule is based on three major assumptions: (1) that the benefit from a street improvement always extends to a line exactly half way between two parallel streets regardless of intervening lot lines; (2) that benefits per front foot on opposite sides of the street are always equal even though the half block zone of benefit may be 125 feet deep on one side of the street, and only 50 feet deep on the other; and (3) that the benefit will extend to the successive parcels lying between the street line and the boundary of the zone of benefit not in proportion to actual depth, but in proportion to the relative depth in comparison with the total depth of the benefit zone. In short, the method is primarily the old cost assessment method in which the total cost of paving a street is first apportioned to abutting property in proportion to frontage. Thereafter, the cost per front foot is distributed over the depth of that front foot to the middle block line by a rule which would impose identical assessments on a lot 20 feet deep on the side of the street with a half block depth of 50 feet, and on a 100 foot lot on the opposite side of the street with a half block depth of 250 feet. That this method will not result in true benefit assessments, as benefit has been defined by certain state courts, goes without saying.[1]

Flint, Michigan, has developed a plan for the apportionment of benefit assessments which more nearly ap-

[1] For a fuller description of this method see Philo H. Anderson, "Apportionment of Street Improvement Costs at Baker, Oregon," *Engineering News-Record*, Sept. 17, 1925, pp. 474-475.

proximates approved methods of land valuation. Like the Baker plan just discussed, it assumes that benefit extends across intervening lot lines to the middle line of a normal block, but "if the distance to the next street or next probable street is greater than ordinary, the district may be shortened to correspond with similar districts in the same locality." [1] Furthermore, the percentage table for the distribution of benefit assessments over lots within the assessment district is based on a standard depth of fifty feet and has been worked out for rectangular lots up to a depth of 500 feet. The rule has also been calculated for use in connection with triangular lots. In distributing the costs of an improvement in proportion to benefits, a trial assessment is first worked out for all the individual parcels in the area of benefit, on the assumption that the benefit amounts to $1.00 per unit foot, fifty feet deep. The sum of these trial assessments is then divided into the total costs to be assessed. This division results in a constant, which when multiplied by each of the individual trial assessments, yields the final distribution of total costs over the properties benefited in proportion to the estimated benefits conferred by the improvement. This method eliminates at least two of the objections to the Baker plan, in that it takes into consideration the influence of relative depths on opposite sides of the street on probable benefits, and in that it uses a depth curve based on a fixed rather than on a flexible base.

Past, and Probable Future, Trends in Development of Methods

The similarity between the evolution of methods of apportioning benefit assessments and that of valuing lands for taxes must by now be sufficiently apparent to

[1] Flint, Michigan, *Rules for Pavement and Grading Assessments* (blue print), p. 1.

the reader. In both fields, dimensional units based on frontage or area are giving way to land value units which embody the idea that the value per square foot of a given parcel of urban land decreases as the distance from the street increases. There are, however, also certain important dissimilarities in the evolution of the two concepts.

In the first place, special assessments frequently amount to a very large percentage of the total value of the properties against which they are levied. Annual taxes, on the other hand, represent a very much smaller percentage of property values. The demand for adequate systems of valuation, therefore, made itself felt somewhat earlier in the field of special assessments than in that of valuations for general taxes. In other words, the need for measuring enhancement in value became acute before cities had felt the need for developing administrative machinery and methods for measuring total value. This resulted in the development of special machinery for the levy of special assessments not related in any way to the means already in existence for the preparation of annual tax rolls.

This separation of functions led, naturally, to the second important difference in the course of evolution in the two fields. The assessors for taxes, as was pointed out in the preceding chapter, were until the past two or three decades quite generally less concerned with problems of valuation than with maintaining the status quo —an end which they achieved by making as few changes as were possible in the preëxisting list of assessed valuations. When necessity compelled resort to better methods, the incumbents in many tax offices were but poorly equipped in mathematics. They, therefore, contented themselves in many cases with depth curves which, from the standpoint of a mathematician, were little more than rules of thumb. The city engineers on the other hand,

who were drafted into service for the purpose of apportioning special assessments, were as a rule well trained in mathematics. When they were moved to develop uniform rules, they generally proceeded to formulate curves with definite mathematical formulæ, and rules for the assessment of irregular lots which are mathematically much more accurate than those used today in the cities which have developed the best methods of valuing land for general taxation. Unfortunately, the engineers have too often approached their problems from the standpoint of apportioning costs on the basis of the physical characteristics of which costs were functions, rather than in proportion to the benefits conferred by the improvements. This tendency has made itself apparent in two important fields, even in the best special assessment systems in use today—in the establishment of boundaries for zones of benefits, and in the levy of special assessments on corners.

A reference to Figure 26 [1] will serve to make this statement clear. In block 149, for instance, assessments for Washington Street paving, under both the Flint and the Baker methods, would be levied against all of lots 1, 2, 3, 4, and 5, and against a portion only of lots 6, 7, 8, 9, and 10. In addition, the rear portions of lots 16, 17, 18, 19, and 20 would also be assessed for Washington Street paving in spite of the fact that those lots front on King George Street. Assessors and appraisers are in substantial agreement in holding that a lot derives value from the street or streets on which it abuts; and that no portion of it can derive any value from a street on which it does not abut. A marked increase in the value of one street may, however, be reflected in increased values in intersecting and parallel streets. Such reflected values will make themselves felt in the unit values assigned to those streets, and will be distributed over lots affected by them from front to rear on the basis of a depth curve.

[1] See above, page 414.

The advocates of the middle line method contend that in the long run justice will be done, because when King George Street is paved, the rear portions of those lots fronting on Washington Street which were not assessed for paving on that street will be assessed for the King George improvement; and that the rear portions of those lots fronting on King George Street which were assessed for Washington Street paving will not again be assessed for paving on King George Street. Because of the workings of the depth curves, this statement is never quite true, but for all practical purposes it may be conceded that it is approximately true provided Washington and King George Streets are equal in importance. If they are both residential streets with about the same general characteristics and the same volume of traffic, the aggregate assessments on any lot in the block for paving on both streets will be approximately the same whether the rear property lines or the middle line of the block are taken as the boundaries of the benefit districts. If, however, one street should be a through traffic business street which required asphalt paving on a concrete base; and if the other street were a purely residential street with only local traffic for which penetration macadam were adequate, the approximate equality between the two methods would no longer exist.

In the matter of special assessments on corner properties, the most comprehensive systems in use similarly violate rules of valuation established in other fields.[1] With reference again to Figure 26, if the property in block 149 were to be assessed for paving on Sixth Avenue, the assessment on lot 1 would be based on the frontage along Sixth Avenue multiplied by the figure in the percentage table corresponding to the depth of the lot, which in this case would be forty feet. In short, the total

[1] For an interesting analysis of the laws and decisions in certain states relative to special assessments on corner properties, see John Simpson, "Assessment of Corner Lots," *Public Works*, July, 1926, pp. 223-226.

assessment on lot 1 for paving on Washington Street and on Sixth Avenue would be the sum of the assessments which would be levied for each street singly. In measuring enhancement in value, therefore, the engineers who have devised these methods have resorted to methods based on the theory on which the Bernard rule of corner valuation is based.[1] That rule, it will be remembered, has proved applicable only to properties located in the retail sections of a city, and has been somewhat modified by the introduction of a supplementary depth curve for the calculation of side street value even for properties of that type in certain cities which employ the rule. Special assessments, on the other hand, are levied in the great majority of cases in partially developed or undeveloped residential areas, where both assessors and appraisers have found that corner values exceed interior values by amounts which require a still further modification of the Bernard rule before it can equitably be used in comparative valuations. Is it probable that the benefits to corner properties—that is their enhancement in value—resulting from street improvements can be measured by a rule that has proven inadequate to measure the total value of the corner either before or after the improvement was made?

It is reasonable, therefore, to assume that the next steps in the evolution of methods for the apportionment of benefit assessments will be the adoption of the rules of valuation which the experience of assessors and appraisers has proved sound.[2] Rear lot lines, supplemented by the use of merge points in two frontage plots, will no doubt take the place of lines through the middle of a block as the boundary of the zone of direct benefit. Corner rules based on the character of the neighborhood

[1] See Figure 23, page 361.

[2] See John A. Zangerle, *Principles of Real Estate Appraising*, Chapter XXIX, for a description of the procedure followed by the sanitary engineer in Cuyahoga County, Ohio.

will be used for the measurement both of corner value and of corner enhancement. Depth curves identical in slope will be used both for value and for enhancement in value, with due allowance, in cities which use one depth curve for residential property and another for business property, for cases in which a given property is lifted by the improvement out of one class into a higher class. Benefit will be expressed in terms of dollars increase in values per unit foot, as indicated by the land value map. These statements are already on the way to becoming facts rather than prophecies in such cities as Buffalo, for instance, where one body is responsible for making not only assessments for general taxation but also benefit assessments for local improvements.

An accurate land value map intelligently used, furthermore, will afford a much better basis for the exercise of judgment in fixing the boundaries of large benefit districts than any that is in use at present. If the improvement on Washington Street were of such a nature as to create enhancements in value not only on that street but on the streets parallel to it or crossing it, the land value map should give some indication of that fact. Public improvements which confer benefits on an extensive area usually take some time to complete. Not infrequently the construction period proper is preceded by another long period devoted to discussion, agitation, or investigation before the project is finally authorized. Benefits, consequently, may register themselves on the map gradually over a considerable term of years, because land values at any given time are based not only on present uses but also on probable future uses.

Three disturbing elements would enter in to affect the accuracy of the measurement of enhancement in value due to any particular improvement. The first of these is the difficulty of measuring land values accurately especially in rapidly developing sections where speculation is

frequently indulged in by individuals who have no conception whatsoever of the factors which create and limit land values. The second has to do with the probable errors which will be involved in the attempt to arrive at enhancement in value by taking the difference between unit values at different times. If we assume, for instance,

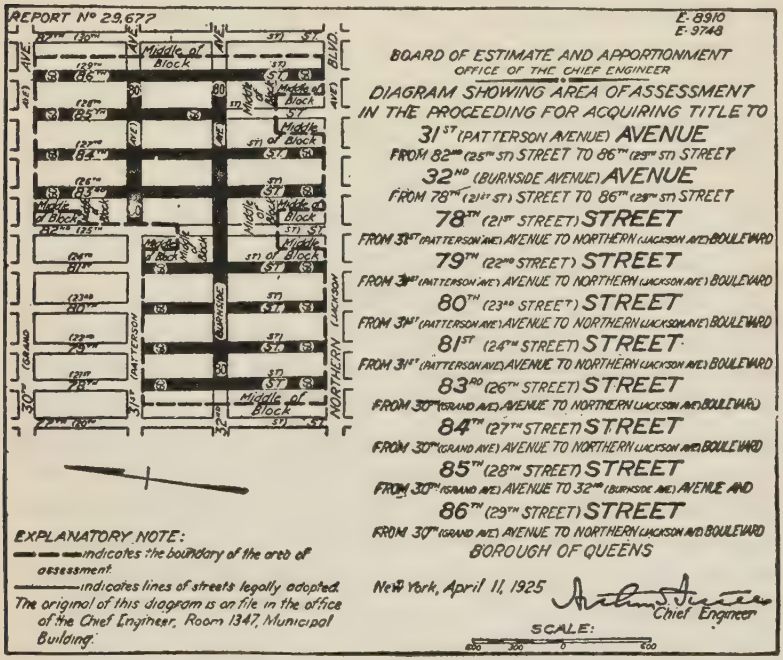

REPORT Nº 29,677
E. 8910
E. 9748
BOARD OF ESTIMATE AND APPORTIONMENT
OFFICE OF THE CHIEF ENGINEER
DIAGRAM SHOWING AREA OF ASSESSMENT
IN THE PROCEEDING FOR ACQUIRING TITLE TO
31ST (PATTERSON AVENUE) AVENUE
FROM 82ND (25TH ST) STREET TO 86TH (29TH ST) STREET
32ND (BURNSIDE AVENUE) AVENUE
FROM 78TH (21ST ST) STREET TO 86TH (29TH ST) STREET
78TH (21ST STREET) STREET
FROM 31ST (PATTERSON AVE) AVENUE TO NORTHERN (JACKSON AVE) BOULEVARD
79TH (22ND STREET) STREET
FROM 31ST (PATTERSON AVE) AVENUE TO NORTHERN (JACKSON AVE) BOULEVARD
80TH (23RD STREET) STREET
FROM 31ST (PATTERSON AVE) AVENUE TO NORTHERN (JACKSON AVE) BOULEVARD
81ST (24TH STREET) STREET
FROM 31ST (PATTERSON AVE) AVENUE TO NORTHERN (JACKSON AVE) BOULEVARD
83RD (26TH STREET) STREET
FROM 30TH (GRAND AVE) AVENUE TO NORTHERN (JACKSON AVE) BOULEVARD
84TH (27TH STREET) STREET
FROM 30TH (GRAND AVE) AVENUE TO NORTHERN (JACKSON AVE) BOULEVARD
85TH (28TH STREET) STREET
FROM 30TH (GRAND AVE) AVENUE TO 32ND (BURNSIDE AVE) AVENUE AND
86TH (29TH STREET) STREET
FROM 30TH (GRAND AVE) AVENUE TO NORTHERN (JACKSON AVE) BOULEVARD
BOROUGH OF QUEENS
EXPLANATORY NOTE:
indicates the boundary of the area of assessment
indicates lines of streets legally adopted
The original of this diagram is on file in the office of the Chief Engineer, Room 1347, Municipal Building.
New York, April 11, 1925
Chief Engineer
SCALE:
Middle of Block
BURNSIDE
PATTERSON
NORTHERN (JACKSON)
GRAND

FIGURE 27. Area of Benefit Established in New York City for a Group of Street Openings.

that the land value map indicates that the unit value on a certain block front was $10 before the completion of a certain project and that it was $15 thereafter; and if we assume furthermore that the land value units are correct only within limits of probable error amounting to 10 per cent, we are confronted by this situation. The apparent enhancement would be $5.00, but the 10 per cent probable error in the land value units would introduce

limits of error into the difference indicated by a possible minimum enhancement of $2.50 and a possible maximum of $7.50. The stabilization in values due to mounting tax rates and to the growing restrictions placed on land uses by zoning ordinances will no doubt serve both to reduce this margin of error and to establish probable maximum limits both of value and of benefit for certain types of land in given localities.

The third difficulty would arise because the land value map registers total enhancement in value, rather than the enhancement due to a particular improvement for which benefit assessments are to be levied. This difficulty can no doubt be minimized by the better planning of local improvements. If all the improvements necessary to residential development are included in one project, that is, if sewer laterals, water main extensions, street paving, and sidewalks are consolidated into one project, and if the project is made to cover a district rather than one single street, this difficulty will tend to disappear. Figure 27, which represents the benefit area in a proceeding for the acquisition of title to a group of streets, will help the reader to visualize the manner in which improvements by districts instead of by single streets will tend to simplify the problem of levying benefit assessments.[1]

Some Important Details of Administrative Procedure

The levy of special assessments, however, involves more than just the distribution of costs in proportion to benefits, to costs, or to functions of costs. Certain other factors affecting the constitutional rights of property owners, the relationship which must exist in a healthy democracy between a governing body and the individuals within its jurisdiction, the proper allocation of powers

[1] Board of Estimate and Apportionment (New York City), *Minutes of Meeting*, June 5, 1925, p. 4630.

and duties among the units in the administrative organization from the standpoints of both responsibility and efficiency, and a proper correlation of the improvement program itself with the financial calendar, must also be taken into account. The limits of this chapter prevent as full a discussion of these features as their importance warrants. Certain of the outstanding essentials will be briefly touched on below.

Initiation of Projects

In some of the earlier laws, the right to initiate a local improvement project, the cost of which was to be met by special assessments, was vested solely in the abutting property owners themselves. Their initiative took the form of a petition signed by a majority of the property owners affected. Majorities were determined in a few cases on the basis of the number of individual property owners concerned, but in most cases with reference to the frontages of the properties abutting on the proposed improvement. This plan militated against a well planned and comprehensive improvement program on the part of the city authorities since it deprived them of the power of initiative unless they were willing and able to finance all or part of it out of general taxes, even though distinct and measurable local and district benefits would result therefrom. In order to obviate this difficulty, the more recent laws frequently provide for the initiation of a project by resolution of the governing body, subject to a notice of intention to all interested parties and a public hearing. The power to veto any project—or rather, the power to veto the use of special assessments for the project—is frequently left in the hands of the property owners, who may exercise it by presenting a petition to that effect signed by the owners of more than 50 per cent of the frontage affected by the proposed local improvement.

The notice of intention is served on property owners by the posting of notices at stipulated intervals along the line of the proposed improvement, by advertisements in an official or other journal circulating in the community, or by mail. In many cases, this notice contains simply a copy of the resolution of intention and an announcement of the date of the hearing. It is desirable that the notice should contain for the information of the property owner also an estimate of the probable cost of the project as a whole, and sufficient data to enable him to calculate for himself the approximate amount which will eventually be levied against him if the project is carried out. In some municipalities, officials object to the submission of estimates of this character on the ground that if actual costs and levies should vary considerably from those indicated in the notice of intention, the discrepancy might be used as a basis for invalidating the assessments by judicial procedure. On the other hand, there can be no doubt that action of this kind will stimulate better planning by city officials from both the engineering and the financial standpoint, and that it will facilitate final action on assessable projects because the property owners directly affected and the citizens in general will have concrete information on which to base their judgment. The principle that taxpayers and citizens are entitled to full information as to the details of the expenditures proposed in the general budget, together with the means of financing in sufficient detail to permit each taxpayer to estimate what his share of the costs will be, is well established in modern governmental practice. The plan of giving those directly concerned similarly complete information concerning localized projects which are to be financed by localized revenues is merely an extension of the same principle, and it is just as essential to intelligent action in one field of finance administration as in the other.

Physical Planning of Projects

The physical planning of an improvement project is of necessity an engineering function. It has not been so regarded however in certain jurisdictions, the abutting owners themselves having been given the duties or the rights of passing on technical details which they were in no wise qualified to pass judgment on. Furthermore, even when the engineers alone were made responsible for the physical plan, they have not in all cases taken a broad enough view of what those responsibilities entailed. Their estimates have not infrequently been limited to quantities and unit costs for a certain type of improvement, without regard to the questions of whether the particular type selected was the one best adapted to the terrain or the needs of the locality. Sheet asphalt on a concrete base for the full width of the street between curb lines has been prescribed where penetration macadam for a much narrower width with the use of park spaces in the center of the roadway or along the curb lines would have been ample, or vice versa. Sewers have been laid down with a capacity far in advance of present or probable future needs, or else with a capacity so limited that the entire sewer became inadequate in the course of a few years. The blame for faulty planning of this kind cannot in all cases be placed on the shoulders of the engineers themselves, because the state or local legislatures have frequently prescribed in their enactments the exact types of improvements for which the engineer must prepare plans and specifications. In other cases legislative bodies have required the completion of plans without allowing him either the time or the funds necessary to the formulation of an adequate plan.

The failure to correlate proposed improvements with present or probable future needs has been responsible for a very considerable percentage of the cases in which

property owners have been burdened with assessments far in excess of benefits, or in which the cities themselves have been plunged into financial difficulties. The growing body of facts relative to public improvements which is being collected by engineering societies, private industrial concerns and state and federal agencies will soon make future errors of this kind almost inexcusable. Their occurrence will point to incompetent engineering, to faulty administrative organization, or to unwarranted interference by the legislature with administrative duties.

It is the clear duty of the local legislative body, of course, to approve or reject the plans that may be prepared for it by the engineers. In the discharge of this duty, it is its right to demand of the engineer the fullest information possible concerning the project under discussion, and the manner in which it will fit into a comprehensive plan for the district or for the city as a whole. If because of its location an improvement along a certain street must be planned to serve district as well as local needs, the recognition of that fact is essential not only to the proper evaluation of the physical plan itself, but also to the formulation of an equitable financial plan.

Financial Planning

The information essential to an adequate financial plan for a public improvement which is to be supported by benefit assessments is, in addition to the engineer's estimates of costs, the following: (1) the present value of the lands lying within the zones of direct or indirect benefit which will probably be created by the proposed improvement; (2) the probable enhancement in value (in the aggregate, and by values per unit foot or per standard lot for purposes of ready comparison) which may reasonably be expected to follow the improvement in the light of experience gained from similar improvements in other comparable sections of the city; (3) an estimate

of the extent to which anticipated enhancements have already been taken into account in the sales on which present values are based; (4) the character and value of the private improvements on land within the zone or zones of benefit. If the city is zoned, information as to present uses of land, and the zones of height, area, use, and density of population in which the proposed improvement lies is also essential.

In projects which involve the acquisition of lands for the widening or extending of streets or for other purposes, the report of the assessors should include the value as shown on the last tax rolls of all the property to be taken, and estimates of the damages to remnants of buildings or of lots which would result from such taking. The chief financial officer of the city should then bring together into one summary for submission to the city council the costs of construction as estimated by the engineer, the values of additional land to be taken and the estimates of damages submitted by the assessors, and an estimate of incidental costs chargeable to the project from his own books of account, for comparison with the estimates of probable benefits submitted by the assessors. The council and the citizens, who attend the hearing, will then have a fact basis on which to formulate a judgment as to the advisability of going on with the project in its original form, or of modifying it so as to bring estimated costs more closely into harmony with estimated benefits.

This outline of a desirable plan of administrative procedure for financial planning in connection with assessable improvements must not be confused with a description of prevailing practice. No one city today follows out all the steps in the plan outlined. Practically all of the processes, however, are to be found in operation in one form or another as elements in existing plans in the small number of cities which have developed the most

comprehensive systems of special assessments. The plan differs widely, however, from those which are required by law or sanctioned by the courts in the great majority of cities, in that it proposes that the methods and practices of budget making and of valuations which have been tested and accepted as valid in other branches of municipal finance administration should be incorporated into special assessment procedure.

Time of Levy

In some cities special assessments are levied and collected or converted into liens against the properties subject to assessment before the improvement is undertaken. In a poorly organized system of municipal finance this plan has the advantage of permitting the city to pay the contractor in cash, or in liens which he can convert into cash by discounting them with the local banks. The disadvantages, of course, are obvious. In the first place, the amounts levied are based on estimated costs which may vary widely from actual costs. Some state laws permit cities to levy supplementary assessments against abutting property owners in case the original levy proves insufficient to meet the costs, or to make rebates in case it proves to be too large. In other states, no legal remedy is provided for correcting a situation of this type, and the original assessments stand unless the property owners affected succeed in having them set aside by the courts. In the second place, when a contractor knows that he is to be paid in liens instead of in cash, he must inevitably take the costs of, and losses in, collections into consideration in fixing the amount of his bid. When a city collects its own special assessments or enforces liens based on uncollected levies, it can utilize the machinery already in existence for the collection of general taxes. This procedure entails little, if any, addition to the normal costs of administration. Under a tax sale procedure

such as that provided in the state of New Jersey,[1] the losses due to uncollectible assessments should be negligible, except in those instances where the economic factors underlying present values and enhancements in values were grossly misjudged in the financial plan. For the contractor, or the banker to whom he assigns the liens, on the other hand, both the costs of collection and the losses due to uncollectible assessments may amount to considerable sums, which must be provided for in the levies which ultimately prove collectible if the contractor or his assigns are to be saved from loss.

Several plans have been adopted in order to eliminate some or all of the disadvantages of the procedures just outlined. One of the earliest involved the creation of a revolving fund on which the city would draw to pay the contractor during the course of construction. The fund would then be reimbursed by the proceeds of assessments levied after the completion of the project. This plan is in successful operation in several cities, including New York City. In some of the smaller cities, however, it has not been found feasible to follow this plan because of the difficulty of finding means for the establishment of the revolving fund. Tax limits or public opposition to higher taxes, on the one hand, and rigid debt limits on the other, close the only avenues through which the sums necessary for the creation of such funds can be obtained. The administration of a revolving fund, furthermore, raises problems analogous to certain of those which have frequently arisen in connection with sinking funds.

The most feasible and least objectionable plan, where the state law permits, is one permitting the use of temporary loans for the financing of local improvements. These loans are paid off plus interest during the period of construction, out of the collection of special assessments levied after the completion of the project, or out of the

[1] See above, page 299.

proceeds of improvement bonds based on deferred installments of such assessments.

Although it is difficult to lay down hard and fast rules governing the time when special assessments should be levied, it may be stated as a general proposition that for minor improvements which can be completed within the course of one season, the most desirable course from the standpoint of ease and accuracy of administration is the levy of assessments after the improvement has been completed and after all the items entering into the cost have been determined with exactness. In the case of major improvements, such as the construction of subways, for instance, it may be more desirable to levy assessments in advance, subject to later supplementary assessments, and to collect them in installments as the work proceeds. Such a procedure would undoubtedly result in economies because it would eliminate the necessity for compounding the semiannual interest payments on money borrowed for the construction work over a considerable period of years. In the case of an improvement requiring seven years to build, the interest at 4 per cent per annum payable semiannually on equal sums borrowed annually to pay construction costs would compound to about 14 per cent of the actual sums paid for construction, and would increase the costs to be assessed against benefited property by that amount. Under circumstances of that kind, the savings to property owners resulting from the collection of annual installments during the course of construction would probably outweigh any disadvantages inherent in the method.

Confirmation of Assessments

In the great majority of jurisdictions, the confirmation of assessments is a legislative function; in a few, a judicial function. Under both plans, an assessment roll is prepared by a permanent administrative agency of the

city, or by a commission appointed for the purpose, which avails itself as a rule of the services of full time municipal employees. This roll contains the names of the property owners affected, descriptions of the properties against which assessments are levied, the amounts levied against the individual properties, and is usually accompanied by a map indicating the location of the improvement and the location and dimensions of the properties affected. In some cities, New York City for example, the confirmation of assessments for improvements in existing highways is a legislative function; that for improvements involving the acquisition of land is delegated to the courts. With few exceptions, the laws provide or the courts hold that property owners are entitled to notice before confirmation, to an opportunity to inspect the rolls, and to a public hearing. In some cases, the only appeal from an assessment once it has been confirmed is to the courts; in other jurisdictions, a prompt and inexpensive administrative review after confirmation is provided similar to that discussed in the preceding chapter in connection with assessments for general taxes.

Collection of Assessments

Except in the cases already referred to above, in which the contractor is made responsible for the collection of special assessments, the amounts levied against property owners for improvements or services are collected as other municipal charges are. Where the movement for efficient finance administration has made itself felt, the same officials who collect taxes and other municipal charges also collect special assessments, and enforce the liens based thereon in case of delinquency.[1]

[1] A fuller discussion of this phase of the general problem will be found above in Chapter X dealing with treasury management. See especially pages 299 ff.

Because of the fact, however, that special assessments frequently represent heavy levies in proportion to the value of the properties against which they are assessed, the property owners are as a rule given the choice of paying in full or in installments over a period of years.

In some cases, the general law or the charter specifies the number of annual installments in which the payer may elect to pay. For street and sewer improvements, the number is frequently fixed at ten; for sidewalks, a common term is three. In a few states, the local governing body is allowed to establish the number of installments at any number less than the maximum established by general law. In short, a property owner subject to special assessment may present himself at the office of the official charged with collection on or before the date on which the assessments are payable, and pay the entire sum, or one installment of that sum plus interest for one year on all deferred payments. The rate of interest on deferred payments is established in some cases by state law; in others a maximum is established in that law, and the local legislative body is allowed discretion in fixing rates within that maximum. In many cases, the maximum is fixed at a point somewhat above the maximum rate at which municipal bonds may be sold, and there is a general tendency on the part of municipal officials to impose this maximum, on the grounds that the excess of the rate imposed over the going rate is necessary to pay costs of administration. In many cases, the difference is far greater than would be justified even on these grounds.

Special Assessment Bonds

When all or part of the property owners affected elect to pay their special assessments in installments, a municipality is given the privilege of issuing bonds to an amount equal to the aggregate deferred payments rep-

resented by liens against benefited property. The general standards governing bonds of this type are the same as those discussed in the chapter dealing with debt administration.[1] There are, however, certain factors involved in special assessment bonds which deserve emphasis at this point.

Under the special assessment laws in force in certain states bonds of this type are supported solely by the liens based on the deferred installments. The city undertakes to act as agent for the bondholders in the enforcement of those liens, but does not guarantee their collection. In case of default by the property owners subject to the liens, the bondholders suffer the loss. As a result of the added risk entailed in the purchase of bonds of this type, they frequently carry an interest rate from 1½ to 2 per cent in excess of the going rate for other municipals. Defaults on bonds of this nature, furthermore, are frequent.

In order to obviate this injustice to bondholders, and to reduce the interest costs necessary on deferred installments, many laws now require that a municipality must supplement the security offered by special assessment liens, by pledging its full faith and credit to the payment of principal and interest to the holders of special assessment bonds. A procedure such as this puts municipal officials on their guard against overestimating the security afforded by special assessment liens, and at the same time reduces interest rates for such bonds to the normal rate for other municipals.

Another point in the administration of special assessment bonds deserves more study than it has yet received. Deferred installments are as a rule equal in amount as regards principal, but the annual interest requirements on future installments are naturally heavier at the beginning of the series. If a total special assessment

[1] See below, Chapter XIV.

against one property owner amounts to $1,000, and he elects to pay in ten equal annual installments of $100 each with interest at 7 per cent per annum, his interest payments will range from $63.00 in the first year to $7.00 in the last year. This somewhat onerous distribution of burden is made necessary because the bonds as a rule are issued in the form of straight serials. If a serial annuity type of special assessment bond were substituted, that is, a type in which the annual payments for principal and interest combined were reduced to equality, it would be possible to equalize also the annual burdens on property owners.[1]

The Future of Special Assessment Procedure

On the whole, special assessment procedure has not yet developed sufficiently to indicate clearly the lines which future growth will follow.

So far as underlying principles are concerned, and leaving out of consideration the accidental and more or less temporary variations in legal provisions from state to state and from city to city, special assessments may equitably be employed in the financing of public improvements and public services, (1) whenever the work performed involves the abatement of a nuisance for which an ascertainable individual or group of individuals may justly be held responsible; and (2) "whenever"—in the words of the Massachusetts law—"a limited and determinable area receives benefit or advantage, other than the general advantage to the community, from a public improvement" or from a public service.

The many points of contact, between the economic, legal and administrative principles on which both special assessments and general property taxes are based, make it reasonable to assume, furthermore, that special

[1] Alden H. Little, "The Illinois Special Assessment Law," *Illinois Municipal Review*, Nov.-Dec., 1924, pp. 120 ff.

assessment procedure will develop in a manner closely parallel to, if not identical with, that which general tax procedure has followed. In other words, it is probable that special assessment rolls in the future will come more and more to be prepared by permanent administrative officials of the city, preferably those charged with the preparation also of general tax rolls; that the rolls will be confirmed by the municipal legislative body after due notice and public hearing; that individuals will be granted the right to appeal on the basis of facts from their assessments to an administrative body established for the purpose, which may well be the same body exercising similar functions in connection with general taxes; and that court action may be invoked only on questions involving law, and after all other remedies have been exhausted.

CHAPTER XIII

MISCELLANEOUS CITY REVENUES

While there are literally hundreds of sources from which city governments receive miscellaneous revenues, this heterogeneous group yields in the aggregate less than one-fifth of the total revenues of municipalities with a population of over thirty thousand.[1] In fact, the miscellaneous revenues which are directly administered by the municipal authorities constitute only one-eighth of the total revenues of such city governments.[2] Nevertheless, because of their great multiplicity, miscellaneous revenues have proved a tempting field for the ubiquitous seekers after new sources of municipal revenue, and much time has been spent on them which might have been devoted more profitably to better administration of the major sources. Any attempt to recast for present day use the great number of survivals from the Middle Ages among the existing miscellaneous revenues must inevitably result in the creation of petty nuisance taxes whose ease of evasion is notorious, and whose direct and indi-

[1] General property taxes, which form the backbone of American municipal revenues with an aggregate yield of 64.5 per cent of the total in 1923, have been discussed at length above in Chapter XI; the earnings of city owned utilities, which yield in the aggregate 10.5 per cent of the total, are discussed below in Chapter XV; revenues from special assessments, which amount to 5.7 per cent of the total, are treated above in Chapter XII. The remainder, or 19.4 per cent of the total, may be grouped under miscellaneous revenues. See Bureau of the Census, *Financial Statistics of Cities*, 1923.

[2] Miscellaneous city revenues which are administered by the state or county governments amount to 6.8 per cent. This leaves 12.6 per cent, which are administered directly by the city governments. The latter amount is made up as follows: poll taxes, 0.2 per cent; business and non-business licenses, 2.7 per cent; fines and forfeits, 0.8 per cent; earnings of general departments, 2.8 per cent; highway privileges, 1.2 per cent; rent, 1 per cent; interest, 3 per cent; pension assessments, 0.8 per cent; donations, 0.1 per cent.

rect costs of administration are oftentimes out of all proportion to the total yields.

It is not possible in a single chapter to discuss in detail the numerous miscellaneous revenues known in American cities. The emphasis in this chapter is, therefore, placed on those revenues which present administrative problems to many municipal officials. Special attention is also given to those sources which should be more widely known and utilized by city governments.

State Administered Municipal Revenues

The revenues derived by cities from special taxes on banks, street railways, and other corporations, and on incomes, inheritances and mortgages constituted 2.3 per cent of all municipal revenues in 1923. Taxes of this type are as a rule levied and collected by state governments—in a few instances, by county governments as agents of the state—and all or part of the yield is apportioned to municipalities. City revenues from income taxes are found only in New York, Massachusetts, and Wisconsin; from inheritance taxes in Ohio, Illinois, Wisconsin, Minnesota, and Virginia; on mortgages, in New York, Michigan and Minnesota; and from special taxes on various types of corporations in four New England states, and in New York, New Jersey, Maryland, and North Carolina. With a few minor exceptions, municipal officials play no part in the levy, assessment, or collection of revenues of this class, beyond ascertaining that the apportionment has been made in accordance with the terms of the law by the state administrative officials charged with the duty of distributing the proceeds.

Subventions

In addition to the state administered taxes on specified sources listed above, whose yield is allocated by state law in whole or in part to municipalities, practically all

states grant aid to local governments for the support of certain functions. In a few states, the counties also grant aid to municipalities out of their general funds. This source yields 4.5 per cent of all municipal revenues, about nine-tenths of it being for the support of education. Here again, the administration of the revenues presents no problems to the municipal official. The state, out of its own revenues, grants aid in such amounts as the legislature has prescribed in its general enactments. The provisions of the law may be unwise or unjust, but the city as such has no voice in the matter.

Poll Taxes

Poll taxes are discussed here not because of their importance as a source of municipal revenue, but because of their widespread use and of the problems of administration which they present. In 1923, they yielded less than a fifth of 1 per cent of all municipal revenues, but about four out of every ten cities derived something from that source.

In some states, the poll tax survives purely as a source of revenue. In other states, where the possession of a poll tax receipt, or of a series of receipts for poll taxes levied in successive years, is made a prerequisite to voting, its primary purpose has been the disfranchisement of certain elements of the population. In a few states, where the industrial development has tended to concentrate both taxable property and political power in a few hands, it is used as a device for shifting a part of the municipal tax burdens from the property owning class to the nonproperty owning or laboring classes, the latter often being predominantly of alien stocks.

The type of administration varies, of course, with the true purpose of the tax. Where the poll tax is used as a means of limiting the number of electors, efficient administration from the revenue standpoint defeats that pur-

pose. Consequently, the dominant political organization practically guides the tax administration, with a view to maintaining its own electoral supremacy. This usually means limited receipts from poll taxes. Where the purpose of the poll tax is the extraction of as much revenue as possible from alien laborers, the simplest and most inexpensive plan is to appoint the paymasters of large industrial concerns as deputy assessors and collectors. If the purpose of the tax is primarily revenue, as in Massachusetts, it becomes necessary to have the assessors expedite the completion of a separate poll tax roll by a house to house canvass as soon as possible after the legal taxing date, and to proceed at once to a vigorous and relatively expensive campaign of collection from all nonproperty owners listed.

Because of the fact that both propertied and nonpropertied polls are carried on the same rolls, because the same assessors prepare both property and poll tax rolls, and because the expense of collection arises chiefly in connection with nonpropertied polls, figures on costs of administration are difficult to compile and frequently misleading. Estimates based on a careful analysis of records in the city of Newark, New Jersey, in 1918, indicated that seventeen cents of every dollar of poll tax collected were expended in administering the tax. Even that estimate does not show how much of the poll taxes collected from individuals who would not be reached by other direct taxes is consumed by the additional expense over and above that of property tax administration. If allowance is made for this, it is probable that the tax on polls in many cities produces no net revenues over and above the costs of administration.

Local Taxes on Businesses and Occupations

With the exception of certain subventions which are paid to cities by state governments out of the proceeds

of trust funds, the miscellaneous revenues touched on above are derived directly or indirectly from taxes. We come now to a class of revenues which, at one end of the scale, are clearly taxes imposed on businesses and occupations for the primary purpose of obtaining revenue; and which, at the other end, are charges against certain businesses and occupations proportioned more or less accurately to the costs of regulating them in the interest of public welfare.

Because of the fact that the taxes of this character and the regulatory charges shade into one another just as white and black may be combined into an infinite variety of grays, a number of eminent authorities on public finance hold that no logical line of demarcation exists between revenues which are collected under the taxing power and those which accrue as by-products of the police power.[1] The courts, however, still emphasize the distinction, and from a legal standpoint, municipal officials must keep clearly in mind with reference both to the enactment and to the administration of local ordinances, the exact powers they are exercising.[2]

When the primary purpose or the legal basis of an ordinance is regulation, as in the case of police control over professions, occupations, or activities which involve hazards to public safety or welfare, care must be taken to keep financial considerations subservient to that primary purpose. In southern cities, where every conceivable variety of occupation and business is subjected to a so-called license tax imposed for revenue only, it frequently happens that individuals who are entirely unqualified by training, experience, or character to engage in certain professions, obtain the requisite license upon the payment of a stipulated sum to a tax collector in the city hall. The prominent display of this license in the

[1] See E. R. A Seligman, *Essays in Taxation* (1925 ed.), pp. 402-6.

[2] Aberdeen-Franklin Coal Company *vs.* City of Chicago, 145 N. E. 613 (1925).

holder's place of business helps to deceive the public as to his proper qualifications, and imposes obstacles in the way of highly desirable regulation under the police power. Under the latter power, a license would be issued only after due examination and registration. The charge to cover the costs of administration, if made at all, would be the minor and not the major feature of the operation.

For Purposes of Regulation

The businesses and occupations generally licensed or taxed in the cities where regulation is the purpose are: auctioneers, peddlers, junk dealers, pawnbrokers, second-hand dealers, employment agencies, dealers in inflammables and explosives, commercial recreation (such as bowling alleys, pool rooms, circuses and side shows, athletic and ball parks, theatres, dance halls, and soft drink parlors), dealers in food (such as bakers, butchers, dairymen, icemen, and restaurant keepers), builders and plumbers, electricians, wreckers, signposters, etc.

This does not pretend to be a complete list. It shows merely the various kinds of licenses and license taxes which have been used for regulative purposes. Up until the last few years the rates levied under these license taxes were generally quite low, and were uniform for a given occupation. For example, every ice dealer might be charged one dollar and required to attach a license plate bearing his number on the entrance to his place of business. In the last ten years, however, rates have been increased and graduated so that the large business would pay more than the small business. For example, each ice dealer might be charged on the basis of the number of wagons or handcarts which he operates or upon the number of tons of ice handled. Pool rooms are now commonly taxed on the basis of the number of tables; and theatres, restaurants, and ball parks on their seating capacity.

For Revenue Purposes

The second kind of business or occupation tax is clearly for revenue purposes. Such tax is generally levied by an omnibus bill in which every profession, business, occupation, or gainful activity is cited in its appropriate alphabetical order with the exception of government employees, ministers, priests, wives, and domestic servants. The occupational licenses for Little Rock, Arkansas, for example, run from adding machine agents, advertising concerns, architects, and attorneys to watermelon dealers, welding companies, wood yards, and yeast concerns. In Cincinnati, Ohio, the list runs from abstractors to watchmen and includes practically every business, industry, trade or profession which can be found in the United States census of occupations or in the classified telephone directory.

Fixing Rates

How high the rates should be, no one knows. Wherever the costs of regulation can be estimated, as with theatres, circuses, and ball parks, this should be taken into account in determining the license rate. But in most cases it is impossible even to make estimates. In such cases it is customary to raise the rate slightly from time to time and to make comparisons with other cities which have higher rates. Clearly this is unsatisfactory. The study of what other cities are doing is always worth while because of the suggestions which it offers, but each city must realize that its own conditions must govern in local matters of this sort. Probably the best thing that a city can do if the license rates are to be overhauled is, first, to make a complete study of the existing licenses, including those paid by its residents to the county and the state; second, to prepare a list of businesses and occupations which require regulation by the city; third, to pick out

the businesses and occupations for which the costs of regulation can be estimated, and determine the appropriate rates, making proper classification where the top and bottom of any group are far apart; and fourth, to arrange the remaining businesses and occupations in a list with the most troublesome and exacting from the standpoint of regulation at the top, and the least unusual or difficult at the bottom, and the others scattered along in between. The ability of the different businesses and occupations to pay must be given some consideration even when the purpose of the license tax is primarily regulation. It will be found that many of the present licenses are clearly absurd when compared with such a list. The final step is then to determine upon the appropriate rates and classes in accordance with the ranking assigned in the list.

Where the purpose of the tax is revenue, some effort is usually made to make the tax small for the small business or the humble professional man, and heavier for those better able to pay. Under the Cincinnati ordinance, in the case of merchants and manufacturers, this is done by having a flat charge of eight to ten dollars with an additional levy of one to two dollars per employee. In Little Rock, the rate for merchants is from $5 to $1,500 on the basis of average stock,[1] newspapers are placed in nine groups on the basis of frequency of issue and circulation, and ice cream manufacturers pay in proportion to the gallons manufactured. Even the attorneys are placed in two classes, those having practiced five years or less paying $15, and those having practiced more than five years $25. These are cited as illustrations. It would be impossible to cite all of the different kinds of classifications which are now being used in the various cities. The important thing to be noted is that the effort is being made through classification to place a heavier

[1] This stock is also taxable as personal property.

burden upon those who are able to pay, and that the classification is usually based upon something which can be easily counted or measured.

The work of classification has been badly done in most cities. If the taxes are low, this is not important, but if they are to produce substantial revenues, then real injustice can be done through poor classification. The number of years of law practice, the number of employees, the gallons of molasses stored, the number of theatre seats, are at the best very rough measures of ability to pay. They are used because they are easy to get at. More accurate measures are net income, gross income and rental value of offices and stores with proper classification. But these require more red tape and record keeping.

Where the effort to introduce graded rates is made, there are two methods that can be followed. The simplest form is that which provides for progression by large classes. This system is illustrated by the Little Rock tax on plumbers which provides that a plumber with less than five journeymen shall pay $25 while the plumber with five to nine journeymen shall pay $50. This type of progression is hard on the plumber who comes just over the class line, for example, the man with four journeymen pays $25 while the man with one more journeyman must pay $50, or twice the tax. Such a system of grading also encourages evasion. This is especially true when it is applied to things that are easier to forget than the number of employees, for example, where cotton brokers are classed by the number of bales, or physicians by the gross income received. In Charleston, South Carolina, 116 lawyers, physicians, dentists and chemists took out licenses for 1921. Of these only thirty classed themselves as receiving incomes (1920) of $2,000 or more, and one-third were classed as receiving less than $500.

The second type of gradation is by small classes. If

applied to the plumbers cited above, it would be as follows: each plumber $25 plus $5 for each journeyman employed over four. The classes in this gradation change for the addition of each employee. The small class system is not so easy to enforce as the large class system, but it is fairer to the taxpayers just above the class line and is therefore preferable where the business tax is heavy.

Should the business license taxes be made progressive like federal and state income and inheritance taxes? That is, should the big coal dealer be asked to pay more per ton or per gross sales than the small dealer? In some cities this is being done. In other cities the ordinances work just the other way, and the big dealer is paying less in proportion than the small dealer. In some cases, the dealers in the middle group pay high rates and those at the top and bottom get off more easily. This is no doubt unintentional and comes from a failure to understand the proper drafting of classes and rates. It seems reasonable on this matter to follow the suggestions of the model tax plan of the National Tax Association which proposes that taxes on business and property shall not be progressive though taxes on income may be.[1]

State Taxes Preferable

Omnibus business and occupational licenses and taxes have been developed primarily in the southern states. In recent years, however, under the pressure for funds they have been introduced in other parts of the country especially where the state tax system has failed to keep pace with the needs of the cities. The careful studies which have been made of the operation of these taxes in a number of cities indicate rather clearly that such taxes are not satisfactory except as emergency measures. It is far better for the state to change its tax system so as

[1] *Proceedings of the National Tax Association*, 1919, p. 426.

to reach occupations and businesses and then to return all or part of the revenue collected to the localities. In the case of the genuine regulatory licenses, the situation is different.

Departmental Revenues

In addition to the major public services which municipalities sometimes supply to their citizens, such as transportation facilities, electricity, gas and water, there are a number of minor activities administered by the general municipal departments from which revenues are derived. The exact line of demarcation between these revenues and those included in other classes is sometimes difficult to establish.

The outstanding characteristic of the departmental earnings, like the earnings of public utilities, is that they accrue as the result of payments made to the city in return for services rendered or commodities sold by the city. Unlike the services rendered and the commodities sold by public utilities, however, most of which can be, and frequently are, furnished by private enterprises, certain of the services which fall under the heading of departmental earnings are rendered only by governments. Examples of this group include the recording of private documents and instruments in the public records, and the issuance of certificates of proper registration or the certification of transcripts of such records; the examination and certification of applicants for entry into certain occupations whose indiscriminate exercise may involve hazards to the public at large; the inspection of structures, fixtures and apparatus in which defects may affect the safety, health or welfare of the public; and the provision of permanent or intermittent police and fire patrols on private property.

Other services belonging to this class are not in themselves distinctively functions of government. They

include, at one extreme, services often performed by citizens or their agents for themselves, but in which uniform standards are so essential or so desirable from the standpoint of the public weal, that there is a growing movement for the exercise of the functions by government; at the other extreme, are certain services in which no dispute has arisen concerning the right of the citizen to choose between patronizing branches of government or private agencies. As examples, may be cited the closing of street openings which have been made for sewer or water connections; the removal of snow from sidewalks, or the planting of shade trees along the curb; the chemical analysis, for private individuals, of water, milk or food products; the instruction in educational institutions of students who, because of age or residence, are not entitled under the law to free instruction; the maintenance in publicly supported institutions of other than public charges; and the circulation of books and periodicals through public libraries.

Revenues which accrue under this heading from sales of commodities rather than from sales of services are as a rule restricted to a comparatively small number of classes. Among these are the sales of official publications—official periodicals, official directories, codes of ordinances, reports of departments, land value maps, lists of taxpayers, etc.; sales of antitoxins, vaccines, etc., by the health department; sales of waste materials which come into the possession of the city through its activities in collecting domestic and industrial wastes, or of by-products resulting from the reduction of sewage and garbage; and the sale of discarded or surplus materials which have come into the possession of the city in the normal discharge of its purely governmental functions, and which because of wear and tear or of changes in methods are no longer adequate for the uses to which they had been, or were to be, put.

Manifestly, for a group of revenues so varied in character as these, it is difficult to formulate any rules of administration which will be generally applicable. The activities of government as a result of which the revenues arise are often so important in themselves from the standpoint of the public welfare, and on the whole involve expenditures so much in excess of the revenues that can possibly be derived from these minor sources that the administration of the revenues themselves must be subordinated to larger questions of public policy. It is a matter of much greater importance that the patrons of a theatre should be protected against hazards due to fire or panic, than that the owner of that theatre should pay to the city the comparatively small part of the fire department's payroll attributable to the stationing of a fireman in the theatre during all performances. The distribution and administration of vaccines or antitoxins for the prevention of contagious diseases may outweigh immeasurably from the standpoint of public health the relatively minor question of the charge to be made in return therefor. The practice of having municipal employees repair highway surfaces that have been injured by unavoidable openings by abutters may yield such large returns to the general public in the safety and comfort of highway users, and to the taxpayers in the prolonged life of the pavements as a whole, that the question of reimbursement becomes one of comparatively minor significance.

On the other hand, certain of these services confer a distinct benefit on certain individuals. This benefit, however, is difficult to measure. In some cases, it is difficult also to measure the exact cost of rendering the service to such an individual without setting up a set of cost accounts so detailed and involved that their maintenance would in itself increase the total cost of the operations out of all proportion to the primary costs. In such cases,

the most economical and practical procedure is to set up a schedule of charges against the individuals served which will yield in the aggregate about the total cost of rendering such services.

Highway Privileges

Highway privileges may be classified in a number of different ways, all of which are significant, and none of which alone brings out all the necessary distinctions. As in the case of classifications in other fields, no exact lines of demarcation can be established between classes. It is, however, important to know whether a given special privilege can be exercised only in connection with the use of abutting property, in which case the question of private rights in public highways may enter in; or whether it can be exercised by a nonabutter, in which case it becomes purely a special privilege without any question of private rights. The questions of whether the privilege is for a long or short period of time, whether the use during that period is continuous or intermittent, whether it applies to small areas or covers a large part of the city's highways, whether it applies to space on the surface of the highways, or above or below the surface, and whether it will impede or facilitate travel, transportation and communication, are likewise matters of importance. They enter into the questions not alone of the advisability, the desirability, or the necessity of granting special privileges, but also of the rentals to be charged for them.

Privileges Enjoyed Only by Abutters

Among the most difficult problems are those which arise in connection with the private rights of abutters in the public highways. There can be no doubt, for instance, that the storage of building materials in a street during the process of construction on abutting lots often

involves a very serious infringement on the right of the general public to the use of the street for its primary purpose. On the other hand, the denial of the right to deposit building materials in streets might in some cases be equivalent almost to the denial of the right of an abutter to develop his own property to its best use. From this extreme case, in which there are almost irreconcilable conflicts between indispensable private uses and the rights of the general public, there are gradations of other uses, ranging from those which are not indispensable to abutters but which confer advantages on them outweighing the disadvantages to the general public, to those in which the advantages to abutters are clearly offset by the creation of distinct nuisances to the public at large.

The definition of a nuisance varies, of course, from time to time and from place to place. Where the highway space is more than ample for the primary highway purposes, encroachments by abutters beyond their property lines for stoops, basement entrances, show cases, etc., do not constitute nuisances from the standpoint of the general public, and they do confer advantages on the abutters. As highway congestion increases, however, those uses tend to become distinct nuisances. When public opinion comes to recognize them as such, the law in most states will sanction the withdrawal of the special privileges previously granted by the city, and will aid in compelling the removal of stoops and show cases. Entrances to basements on the other hand, if properly safeguarded and covered, may well be allowed to remain. Under such conditions, they become occasional and intermittent nuisances, and when not in use offer no direct obstacle to the full and free use of the sidewalk by the public.

Sidewalk awnings in some sections of the country are looked on as distinct nuisances because they interfere

with light, air and view. In other sections, however, public opinion countenances their continued existence because of the protection which they offer pedestrians against heat, glare, or rain.

Advertising signs projecting out over the highway afford an interesting example of the influence exercised by public opinion on the definition of a nuisance. Such signs can in no case be considered indispensable to abutters in the enjoyment or use of their properties. In some ambitious communities, they are looked on as highway uses of a type to be encouraged in the public interest rather than restricted. As the numbers, size and varieties of such signs increase, however, public opinion undergoes a change. The signs come to be looked on as direct interferences with the light, air and view not only of the public but of adjoining abutters; as direct menaces to life and limb, and as indirect menaces because they interfere with the free and prompt use of fire apparatus in case of emergency. When public opinion has reached that stage of development, it is not uncommon for all highway privileges of that type to be prohibited.

Privileges for the construction of vaults beneath sidewalks, on the other hand, are rarely looked on as nuisances, if they are safely constructed, and if the space they may occupy is restricted so as not to permit interferences with underground gas and water mains, electric conduits and other essential subsurface uses. Of all the special privileges in highways enjoyed only by abutters, this type would seem to be least complicated by questions of indispensable private rights and of interference with the free use of the highway by the public. Where there are no constitutional or legal obstacles in the way, the question of the revenues to be derived from such privileges resolves itself simply into one of determining a proper rental for the private use of space within a public highway.

Privileges Enjoyed by Nonabutters

The question of private rights to use public highways for special purposes does not arise in connection with special privileges enjoyed by nonabutters. A municipality is free to grant or withhold such privileges without danger of infringing any valid private rights. The only factors to be considered are those of the public convenience and the revenues to be derived.

As a rule, an effective demand for minor privileges of this type makes itself felt only in sections where the rentals of privately owned land abutting on the highways are high—in other words, where the highways are used intensively for their primary purposes of travel. Under such circumstances, a city can derive rentals for space in public highways to be devoted to news stands, bootblack stands, or curb push carts, for instance, at rates per square foot closely approximating those which prevail for ground floor rentals on the abutting privately owned lands. Only in rare cases, however, such as those resulting from irregularities in the street plan, can this be done without adding to congestion and thereby inconveniencing the public or damaging adjoining property. It has sometimes happened in cities which attempted to steer a middle course by fixing high rentals for the privileges and limiting their number, that the privileges have taken on a monopoly value and have been actively traded in by resort to various subterfuges on the part of the holders at prices far in excess of the revenues accruing to the city treasury.

Most important of all the special privileges in highways, however, are those involving easements in connection with the operation of public utilities—utilities designed primarily to expand the rights and powers of the public in its efficient use of the highways for purposes of travel, transportation and communication. Had it

not been for the restrictions imposed by legislatures on the powers of municipalities, and for the administrative incapacity of many public officials at the time the new utilities were being developed, the problem of administering major highway privileges would not now be so acute. As matters stand, no problems which today confront municipal administrations are so fraught with difficulties and so closely bound up with large questions of public policy, as those affecting the administration of major highway privileges and the revenues to be derived therefrom. The difficulties which a municipality encounters in the discharge of its obligations as trustee for the public highways are due not alone to the complexities of the problem, but also to the existence of long term franchises granted by previous city administrations.

Fixing Rates

In a number of their aspects, the payments to be exacted in return for special privileges to the use of space in, or easements over or under public highways, are closely akin to the rentals charged for analogous uses by the owners of private property. Such rentals, as in the case of farms or of space sublet in department stores, may be based either on a share in the gross or net proceeds of the business conducted on the rented space, or on a fixed payment in cash per unit of area. The use of the share method for highway privileges is employed as a rule only in certain types of rapid transit utilities, such as street railways, or autobus lines with exclusive franchises to operate along certain routes. The rentals for highway easements of this type are confused in many classifications with the taxes levied in many cities against the privilege of engaging in certain occupations on privately owned lands. This confusion obscures the fact that a public utility franchise is not

alone a privilege to engage in a certain business, but carries with it also the right to use space in the publicly owned highways, and frequently leads to unwarranted conclusions as to the equity of the payments exacted. Furthermore, when the rentals are based on gross operating revenues they tend to become under the present theories of rate regulation by public utility commissions, not a charge against the net revenues of the company but a cost of operation which is passed on to the users of the utility in the form of increased fares or rates.

The method of fixed payments per unit of space occupied is preferable at least for those highway privileges which involve limited and definite parcels of public property. The rentals for equivalent units of space on private property are established by competition, and vary widely from one section of the city to another. This variation in rentals will tend to be reflected in the unit values of land, which in turn are revealed by the land value map.[1] The rental values per square foot of space in highways will tend to vary from one part of the city to another in the same proportion as that by which the unit values of abutting property vary. Because, however, the unit values of abutting lands represent the value of using that land from the subsurface to the limit of height above the surface established by the building and zoning ordinances; and because the privilege to use space in highways is always restricted within narrow limits—such as the erection of a booth or stand on the surface, the extension of a cellar or basement beneath the surface, or the construction of advertising signs, bay windows, etc., above the surface—the annual value per unit of space of this limited privilege can never exceed that of a similarly limited privilege along the front property line of abutting private property.[2]

[1] See above, pages 353-355.

[2] See "Minor Highway Privileges as a Source of City Revenue," supplement to *National Municipal Review*, May, 1923.

The plan of basing the required payments on objective measurements can be applied even in the cases which involve rights indispensable to abutters, as for instance in the case of privileges for storing building materials in highways. The general police power should be invoked in establishing the limits of area, location, and time within which such materials may be deposited. The payments should then be adjusted on the basis of the rentals per unit of space and of time on abutting private property. Under this plan, the charges for the privileges will be heaviest where abutting land values are highest, and where consequently the normal traffic is heaviest. Because they take into consideration not only the space occupied but also the period of time during which it is so occupied, they will tend to act as an incentive to the holder of the privilege to limit the obstruction to traffic within the smallest area and the briefest time possible.

Special Considerations in Major Highway Privileges

The administration of revenue systems based on existing major highway privileges is complicated in many cities by the terms of old franchises. These franchises frequently established annual payments to the city out of all keeping with the actual values of the privileges granted thereunder. On the other hand, they often impose on the franchise holders certain obligations as regards street paving, snow removal, and the like, which under changing conditions have become unduly burdensome to the companies. In some cases, because no one in the city administration was specifically charged with the duty of enforcing such provisions, the copies of the original franchises have been buried away in files and allowed to gather dust, while the companies have little by little defaulted on their obligations in these respects. This situation is one which alert executives in some cities

have taken advantage of in order to compel a revision of the terms of the franchises along lines in keeping not alone with the adequate discharge of the city's trusteeship over public property, but also with a more adequate control over the purely technical side of highway administration.

The questions raised in connection with granting new franchises are too large and involved to be dealt with in this volume. Certainly, however, no franchise should be granted in perpetuity, and none should be granted without annual payments commensurate with the value of the franchise. Furthermore, questions of paving and snow removal should be dissociated from the terms of the franchise.

Income from Investments

A municipality derives rents and royalties from investment properties and interest on public funds by the exercise of powers which do not differ in the main from those exercised also by private individuals. The principal differences occur in the management of certain funds such as sinking funds for the retirement of debts, or pension funds, which as a rule are hedged about by more numerous and more rigid legal restrictions than are applicable to private funds. For other surplus municipal funds or the investment of endowment funds, the methods of administration are identical with those of a conservative private business. When a city has surplus funds to invest or to lend, or when it has surplus real estate to rent, it can and should obtain the rate of return established by normal business competition in the conservative investment market.

Interest

From the standpoint of capacity to earn interest, city funds may be divided into three classes: active checking

accounts, inactive accounts, and investment funds proper, the last named earning interest for a long term of years. From the standpoint of the banker, funds of the last type are, of course, the most desirable. In the greater part of the country, however, banks are unable to pay as high a rate for the use of such funds as that which the city can earn on them if invested in securities. State laws in practically all states now stipulate the types of securities in which the long term funds—especially sinking funds for the retirement of debt—may be invested. That phase of the problem is more fully dealt with in the subsequent chapter on debt administration.[1]

The other two classes of funds may be grouped roughly as general administrative funds; that is, they represent cash balances on hand to meet expenditures which have been authorized for municipal purposes. The active accounts are drawn upon constantly to pay the city's bills, while the inactive accounts are drawn upon periodically, when amounts are transferred to active accounts. A separation of the funds available for deposit into these two kinds of accounts makes it possible to secure a better average of interest rates on the funds deposited. In some cities, interest rates on one or both of these types of accounts are fixed by legal provisions; in others, they may be determined by competitive bidding. In Philadelphia the rates of interest are fixed. This city began in 1892 by requiring 2 per cent on its inactive accounts. Its active accounts did not bear any interest until 1915, when a rate of 2½ per cent was fixed by ordinance on all deposits, both active and inactive. In 1920 the interest rates were raised to 3 per cent on both kinds of deposits. During Mayor Mitchel's administration, City Chamberlain Bruère introduced competitive bidding for city funds in New York City, which raised the rates to comparatively high levels, but the

[1] See below, pages 499 ff.

maximum rate is now set at 3 per cent by a clearing house rule. Three per cent is now being paid on most of the inactive accounts and 2 per cent on the active accounts. A number of other large cities also require competitive bidding on interest rates in order to secure city deposits. Chicago is required to secure bids by statute, but in practice, the large clearing house banks join in bidding the same rate, while only the smaller banks vary. Three per cent is received on most of the city's funds. St. Louis receives from 2¼ to 3½ per cent, while Kansas City receives from 4 to 5 per cent on its deposits, the difference in rates evidently being due to keener competition in the latter city. Cleveland receives about 4 per cent on its deposits on the basis of a three-year contract. Cincinnati has received as high as 4.28 per cent on its active accounts, and 5.10 per cent on its inactive or time deposits. Detroit receives bids for one year; in fact, most cities are on the one-year arrangement. It gets about 2½ per cent on its active accounts, and from 2½ to 3⅝ per cent on its inactive funds. Charleston, S. C., has received as high as 5.11 per cent on average daily bank balances, compounded monthly.[1]

What method should a city use to secure a fair interest rate on its deposits? As may be seen from the facts presented, some cities use the competitive method successfully; in others, this method has been a complete failure, because competition does not exist between the banks, or because no one bank is large enough to carry all of the city's current funds. On the basis of the experience of New York cities, it seems that the most important method of securing fair treatment from the banks is publicity. The banks need public confidence. If it is known that any individual bank or all of the banks collusively are refusing to allow the city a fair rate of

[1] F. P. Gruenberg, "Interest on Public Deposits," *Annals of American Academy of Political and Social Science*, May, 1924, pp. 147 ff.

interest on its various kinds of deposits, this subjects the banks to public criticism. There is nothing more effective in dealing with the banks than a statement of interest rates allowed on city deposits in other cities.

Rents

American cities do not invest in land for the sake of the income which may be derived from land ownership. This is done extensively in certain European cities. There is no reason, however, why American cities should not administer the lands which they do hold in such a way as to secure from them the maximum revenue. Any other course of action is wasteful and extravagant.

The great bulk of the property owned by a city is held directly for public use, such as the public buildings and the parks. From these no rents are derived. There is from time to time property of this character which is temporarily not needed for public use. In this class are to be found abandoned city halls; old school sites; old fire stations; odd parcels of real estate; sites for new offices, schools, parks or playgrounds; properties which are being accumulated to form the site of a civic center or a street opening, and properties which have come into the hands of the city as gifts or as the result of tax sales. All properties of this character are temporarily not needed for public use. Some of them will ultimately be put to use while others will be sold. In the meantime, however, they represent a distinct property investment which should not be allowed to lie idle provided suitable productive use can be found. The city cannot deal with these properties just as a business man would, because after all there are some uses to which private property may be put but which the city cannot tolerate in the case of its own property. A city, for example, should not lease an odd lot in a residential district for the erection of bill boards or an old fire house in a restricted area for

the establishment of a public garage. This does not mean, however, that the city authorities should sit back and wait for a tenant or a purchaser. Where it is clear that the property should not be sold for reasons of public policy, or cannot be disposed of in the near future because of market or other conditions, the city should definitely go into the market to find someone who can make use of it and who is willing to give the city a fair rental.

The second class of real estate investment is permanent property. In this group are docks, markets, park pavilions and other park concessions, landing fields, athletic fields, reclaimed and filled lands, and all other types of public lands and buildings. Questions of public policy are much more deeply involved when it comes to the rental of such properties. At the same time the possibility of financial loss is also much greater because of the larger amounts involved and because the investments are more or less permanent. Here again the city cannot do everything which is open to a private landlord. It could not with propriety rent surplus space in the city hall to a law firm, or surplus hospital accommodations to a private quack medical school or to a firm of "painless" dentists, even if such tenants would pay high rent.

Should the city endeavor to secure all the traffic will bear whenever it decides to rent properties of this character? The question is especially important in the case of docks and markets. Many city authorities have stated that it is their policy to rent city docks at less than the market rate in order to cut down terminal charges and so indirectly the cost of living. Similarly in the case of public markets, stalls are frequently rented at less than their commercial value so as to permit the food dealer to cut his overhead costs and therefore his selling prices. Investigation of experience does not show, however, that rent reduction is passed on in the form of lower prices. If this is the case, it means that the hucksters and dealers

are themselves taking the financial advantage that comes from low rents because they can put up their prices to a point just under that maintained by their competitors outside the low rent market. In the case of city owned docks, the advantage of artificially low rentals is even less apparent. In no city are there enough public docks and warehouses to control wholesale prices. The result is that all wholesale prices will probably include the costs of handling through the commercial docks and warehouses. Produce and commodities handled through the public docks and warehouses when sold in competition with other food and merchandise will command the same prices. The lessee of the city property will, therefore, be in a position to put into his own pocket the difference between the rent which he pays the city and the commercial value of the property rented. If he does not take it, the middleman or the retailer will.

It is for these reasons that the policy of arbitrary low rentals established in the hope of reducing the cost of living is not now being followed in many cities. On the whole it seems advisable for the city to charge a normal commercial rental for all such properties. This can usually be determined by careful study of corresponding private rentals, a computation of costs, and by the sale of leases at auction, subject of course to such restrictions as the city may determine to impose in the interests of the public. Any other policy will probably result not in reducing the cost of living, but in enriching the favored few who through pull or bribery can secure the leases to public property.

Royalties

Royalties are derived by cities from oil, gas, quarries and similar natural resources. Some European cities secure large revenues from timber. The city of Long Beach, California, is perhaps the most favored city at

the present time with its oil wells which are bringing in royalties at the rate of two million dollars per year under a contract made with one of the large oil companies. It is generally recognized that natural rights and resources should be guarded by the city with great care and opened up to private exploitation only under arrangements which will return to the city the full commercial value of the concession. Here again the careful study of the facts and the stimulation of competitive offers are the city's best protection.

Gifts

Donations and gifts from private individuals seem to have been relatively more important sources of revenue in the past than they are today. In many of the older cities along the eastern seaboard, they took the form of capital sums or of property, only the income from the trusts thereby created being available for the purposes of the trusts. In such cases, the management of the properties and the investment of the funds present distinct problems in administration, complicated in many cases by stipulations in the trust deeds which are but poorly adapted to modern conditions. In some cities, the existence of such trusts has retarded the development of sound administrative practices. In not a few instances, the capital sums were diverted for current purposes; in many instances, the terms of the trust have fostered planless and decentralized administration of the municipal functions of health, welfare, and education.

Should the city government make an effort to secure gifts from private individuals and corporations for the use of the city? In many of our cities there are wealthy residents who would be more than glad to give property and funds for the use of the community provided they could be sure that the gifts would be properly used and appreciated. Many of these same individuals eventually

turn over large parts of their estates to private institutions and serve to create and maintain private enterprises which conflict with or duplicate services which the city is bound to maintain. The extensive growth of private organizations, institutions and endowed foundations is one of the important developments in our civilization. What good reason is there to prevent the diversion of, at least, a part of this wealth into public services under the control of the public? In many of our cities, we now have parks, libraries, band concerts, music festivals, and other things which enrich our city life, made possible by the gifts of citizens. There is no reason why the city authorities should not make a reasonable effort to augment the income of these and other services and improvements through gifts. Where gifts are solicited or accepted by public authorities there are, nevertheless, certain precautions which must be taken. The city authorities must under no circumstances allow themselves to be placed under obligations to the donor in such a way that they cannot easily bring themselves to do even-handed justice in their administration. The donation of a park does not entitle the donor to a lower assessment on remaining real estate than is placed on adjacent property; nor does the provision of a band concert entitle one to break the speed laws. The city authorities must use their influence also to see that the terms of the gift are wise and acceptable. Gifts should not be accepted which are planned primarily to advertise the donor, though there should, of course, be adequate recognition of the gift. Nor should the city authorities endeavor to capitalize for their own advantage the thanks of the community. There is nothing cheaper than this. In the case of endowments or perpetual trusts which are offered to the city, the effort should be made by the city to persuade the donor to provide for a liberal statement of conditions and for eventual changes in these provisions,

if at some future time the purpose in the mind of the donor can be better fulfilled in some other way. In the European countries, there are innumerable endowments which cannot possibly be managed today in accordance with their original restrictions. The city should not accept the responsibility for trusts which may eventually prove wasteful or even injurious because of changed conditions. Every trust should contain a clause permitting a revision of its provisions at such time as this becomes necessary in the interest of society.

Excess Condemnation

Excess condemnation enables a city government to take by right of eminent domain more property than is actually required for a public improvement and then to sell or lease the surplus at a new and higher valuation after the improvement has been completed. For example, when Belmont Street in Worcester, Massachusetts, was widened, more land was taken by the city government than was needed for the widening, and after the work was finished, the excess land was sold again at what was reported to be three times the cost of the land to the city. The profit on such a transaction may constitute an important part of municipal revenue. Certain Canadian and European cities are reported to have financed large improvement projects partially or entirely by excess condemnation.[1] In some respects it is, therefore, a substitute for special assessments.

Excess condemnation has been used very little in the United States. It has been held to be unconstitutional in some jurisdictions. This situation has been corrected by constitutional amendments in a few states, notably New York, Massachusetts, Ohio, Rhode Island, and Wisconsin. No effort has been made thus far to finance large

[1] See R. E. Cushman, *Excess Condemnation*, pp. 142 ff.; also F. B. Williams, *The Law of City Planning and Zoning*, Chapters II and III.

scale projects by means of excess condemnation.[1] Its chief value in this country is in offering a means of wiping out uneconomic lot lines and lot remnants which are left when a street is widened or a new diagonal thoroughfare is constructed. In such projects, it may well be combined with special assessments. Excess condemnation may also be employed with advantage in controlling private developments and thus protecting parks, schools, and public buildings against undesirable neighbors.

[1] The city planning commission of Cincinnati, Ohio, in its plan adopted in 1925, proposed the use of excess condemnation wherever practicable in the opening and widening of streets.

CHAPTER XIV

DEBT ADMINISTRATION

Modern industries are financed to a large extent by the sale of securities. Municipal governments do not differ in this respect from industries. There is a certain part of city expenditures that can be financed advantageously by the sale of bonds. In fact, city governments have resorted to borrowing on an extensive scale within the last few years.[1] The purposes for which money should be borrowed, the factors that should govern borrowing, the character of the bonds issued, and the retirement of these bonds are to be reckoned among the major problems of municipal finance

Purposes for Which City Governments May Borrow

The need for borrowed funds arises from the irregular flow of income into the city treasury, from the unusual expenditure demands occasioned by the construction of large or extensive public improvements, and from extraordinary situations or emergencies

Anticipation of Income

Practically all cities are compelled to resort to some form of borrowing in anticipation of the collection of taxes or other revenues. This condition comes about because of the fact that the date on which taxes become due and payable usually occurs some time after the beginning of the fiscal year. Since most cities start the fiscal year with little or no cash balance, they must bor-

[1] The bonded indebtedness of cities at the close of 1925 is estimated at about $8,000,000,000, an increase of more than 100 per cent in ten years.

row money in order to meet their payrolls and other bills until such time as the authorized revenues are received. Borrowing of this kind involves no hazard to the municipality provided it is carefully controlled. A number of causes, however, may lead to the accumulation of a floating debt as a result of it. One of these is the failure to limit the amount of the loans to the amount of the revenues previously authorized. Provisions in the tax law requiring the extension of taxes which experience proves are not collectible in their entirety; an assessment system which results in erroneous, duplicate, or illegal tax levies; a collection procedure which is not adequate—all of these may lead to borrowing in anticipation of taxes which can never be collected. This is, of course, equivalent to saying that future tax levies must be made in order to pay off the loans, and implies that the budget under which the borrowing was resorted to was balanced in appearance rather than in fact.

In order to minimize the danger of accumulating hidden deficits, several administrative devices are used. The municipal finance code in New Jersey, for instance, provides that all notes issued in anticipation of the collection of taxes for the current budget must be retired by the end of the fiscal year to which the budget applies. In case taxes remain unpaid at that time, notes of a different form may be issued equivalent in amount to the delinquent taxes. If the municipality is subsequently compelled to buy in property at a tax sale, the notes outstanding against it must be converted into tax title notes. It is made mandatory in the law that all notes based on taxes which have not been collected or converted into tax titles, must be retired out of appropriations provided in the budget for the fourth year following the year of delinquency.

The second type of anticipatory borrowing—that in anticipation of the sale of permanent bonds—is less

widely used than the first. Nevertheless, it has a distinct place in a well ordered financial procedure. Temporary borrowings of this kind may be used to advantage in financing major construction and improvement programs. When an improvement is being made by contract, better terms may be secured if the city agrees to pay the contractor as the work progresses. The most satisfactory method of providing such funds is through temporary borrowings.[1] When the improvement is completed, the contractors paid, and the costs determined, the long term financing can be arranged and the temporary loans paid off on the issuance of long term bonds.

It is usually desirable for a city to consolidate its various needed loans in a single issue of bonds. Temporary borrowing makes it possible to hold over certain of the loans until this can be brought about. Short term loans are advisable when it seems desirable for a city to wait for more favorable market conditions before offering for sale an issue of long term bonds. New York and Rochester are examples of cities which have followed this practice with conspicuous success.

It will be seen, therefore, that borrowing enables the city to anticipate its income so that the even flow of its expenditures may continue in spite of the irregularity of its income, and so that expenditures for improvements may be made when necessary without waiting for the final issuance of long term bonds.

Improvements

In the permanent financing of public improvements the irregularity is in the expenditures and not in the income. This arises from the fact that the needs of a city for improvements fluctuate. Within a period of two or three years an entire new water supply system may be con-

[1] A revolving "construction fund" is maintained by some cities, so that borrowing from outside sources is unnecessary. This fund is reimbursed when the permanent financing is completed.

structed, or a new municipal building erected, or a new bridge built, or a street railway system taken over. If the effort were made to pay for any one of these expenditures immediately from taxes, the tax rate would rise temporarily to an unheard of level, or it might even be necessary to enact for a single year an entirely new tax law. Such a policy is, of course, impossible. It would result in great hardship to the citizens and would certainly prove politically disastrous for those who are in power.

It is not only the aim of sound finance, but also of practical politics, to eliminate unnecessary and repeated changes in tax systems and violent fluctuations in tax rates. In the case of public improvements this may be brought about either by borrowings which will be repaid from year to year, or by careful planning so that the annual expenditures will be about the same. The experience of cities shows that this regularization of expenditures through planning can be brought about with a definite improvement program. In fact, in some cases, without any particular planning in advance, there has been a remarkable regularity of capital outlays. But even with the best of planning, there will be years in which the expenditures for projects will go far above normal. If these projects cannot be postponed, then the only recourse is to borrow for as much of the cost as exceeds the normal outlay. The best plan for a city which desires to obviate a bonded debt and at the same time avoid a fluctuating tax rate is to borrow to finance necessary public improvements only when, and to the extent that the costs of such improvements for a given year, in spite of careful planning, are greater than the average of the years immediately preceding or following it. For convenience this may be known as the "tax-and-borrow" policy of financing public improvements in municipalities.

A city which has been borrowing to meet all of its capital expenditures cannot as a rule immediately adopt the "tax-and-borrow" plan because this would raise the tax rate to an abnormal point during the life of outstanding bonds. In such a city, the transition should be made gradually and after a careful analysis of the debt, other tax burdens, and the trend of assessed valuations. Where the taxable property is growing fast, the change may be made within a few years; but where the taxables are stationary, ten or fifteen years may not be an unreasonable period.

In order to free cities from debt entirely, some writers have urged that they should pay for all of their permanent improvements from current tax resources without any use of credit. This is known as the "pay-as-you-go" policy. The policy has been followed at various times in many cities, but it is only recently that the pros and cons of the plan have been threshed out in public discussion.[1] The chief advantage of the policy is, of course, that it eliminates borrowing, with the concomitant interest costs, and leaves the future of the city unmortgaged. The chief difficulty with the policy is that municipal expenditures for permanent improvements in certain years may be so large that the attempt to finance them from taxes would produce an impossibly high tax rate. It is for this reason that the "tax-and-borrow" plan outlined above is preferable.

A city should not borrow to pay for improvements which the people of the community cannot afford. The use of borrowed money does not change the situation. Cities must live within their community resources if they are to escape financial disaster.

[1] See *National Municipal Review*, June (p. 335), August (p. 430), September (p 497), 1924, and January (p. 26), 1925; Special Joint Committee on Taxation and Retrenchment, Preliminary Report on *The Debt of the State of New York*, Albany, 1925, p. 23; and H. L. Lutz, *Public Finance*, pp. 531, 611.

Emergencies

Expenditures for public improvements are not the only outlays which may occur irregularly so as to upset the even flow of municipal finance. Epidemics, unusual disasters, conflagrations and abnormal weather conditions visit cities at intervals. They cannot be provided for in the current budget or anticipated in five or ten year programs. They must be financed as they arise. If this is impossible without a large temporary increase in the tax rate, it is entirely legitimate to smooth out the added burden with the use of credit.

With a change of administration not a few cities have found themselves suddenly face to face with a large floating indebtedness or with maturing term bonds with no sinking funds. Where such accumulated obligations are large, they cannot be absorbed in the current budget. They must be funded and repaid gradually.

During recent years many cities have experienced sudden temporary shrinkages in revenue, as when prohibition wiped out liquor license revenues before any substitute taxes could be put into effect. None of these sudden and temporary conditions can be provided for in the year in which they occur if they are at all large in relation to the total municipal budget. It is, therefore, entirely proper to equalize the added burden with the conservative use of credit.

This does not mean, however, that every unusual expense may be financed legitimately with bonds. Minor contingencies, such as those created by the failure or breakage of machinery and equipment, cannot be predicted in detail; but they are, nevertheless, normal in that they recur in a large city with predictable frequency. Provision should, therefore, be made for an amount sufficient to cover them, either in the form of a contingent fund such as that authorized in the municipal finance

code of New Jersey, or by the use of executive allotments in administering the budget as outlined in Chapter IV of this volume.[1] It is only the large abnormal excess over the usual run of emergencies which may demand the use of credit as a means of securing equable taxes.

Factors Influencing the Borrowing Policy

When a city borrows, it assumes the obligation to return the principal and to pay interest until the debt is extinguished. The fiscal policy which is to control the redemption of the debt must be determined before the bonds are sold. If any choice is open to the municipality, this question of policy controls the type of bonds to be offered. If it is decided that the debt should be retired in ten years, ten year bonds are issued. If it is determined that the debt should be reduced in equal annual amounts during the ten years, straight serial bonds are selected. If, on the other hand, it is agreed that no part of the bonds should be retired until the end of the ten years, ten year term bonds are appropriate. It may even be decided that a given debt need never be repaid, or only at some indefinite date so far in the future that there is no need of making any plans for payment. This is the accepted practice in many European countries, and has been advocated for certain types of debts even in the United States. Under such circumstances perpetual bonds may be issued, or term bonds with a definite plan of refunding them when they fall due. It is apparent, therefore, that the kind and term of bond to be offered by a municipality within the limits set by law depend primarily upon the policy of debt redemption.

When Should A City Pay?

The important question, therefore, is: When should a city pay its debts? The answer is not as simple as many

[1] See above, pages 106 ff.

have imagined. During the past fifteen years it has been usual to answer this question by saying that bonds should be issued for a term of years which coincides with the life of the improvement financed, so that the debt is retired by the time the improvement is no longer of value. This is, however, merely a rough and ready rule-of-thumb for the control of redemption policy. Experience shows that this rule of redemption is superficial; it is not actually followed even in those cities which make the loudest claim to its observance. Under this rule what should be the term of bonds issued for relatively permanent things, like the acquisition of watersheds, and the widening of streets? What allowance should be made for the scrap value of equipment? What should be done with refunding issues when the original improvement has already been abandoned? What is the estimated "life" of medical services rendered during an epidemic which have to be financed from borrowings? When bonds are issued to meet court judgments, what is the measure for determining the term of the bonds? What is the "period of usefulness" of floating indebtedness or deficits which may have to be funded? It will be seen that no arbitrary rule-of-thumb based on "life" or "period of usefulness" can be relied upon to govern the redemption policy. The problem is much too complicated.

There is only one rule upon which we can fall back, and that is this: a public debt should be paid off as rapidly as the government can do so in view of its other obligations, and taking into consideration the wealth of the community and general economic conditions.

Rapidity of Payment

Once it is granted that public policy demands the retirement of debts, the question arises: How fast should debts be paid? This is the real problem of debt redemption. The answer depends upon many complicated fac-

tors, among which are the productivity of the tax system, the fiscal needs of the government for other purposes, the economic condition of the community, the interest trend, the credit of the municipality, the anticipated course of price fluctuations, and the already existing debts. If the tax system is limping hopelessly behind present conditions, as in Ohio for the last ten years, the postponement of debt retirement is entirely legitimate from the standpoint of the cities involved.[1] Where all of the available revenues of a municipality are urgently required for current expenditures and new taxes cannot be imposed, there is of course no opportunity to set aside funds toward the redemption of debt. This may readily occur in municipalities which suffer a sudden and unexpected loss of revenue or encounter extraordinary expenditures.

If the community is passing through a period of expanding prosperity, rapid debt redemption is usually feasible and desirable. The sacrifice of a few personal luxuries in order to retire debts is a profitable exchange. Conversely, periods of depression, when current income is curtailed, do not offer a satisfactory opportunity for the retirement of debt. When the interest trend is upward, existing debts may well be allowed to run while new borrowings should be for a long term of years. When rates are at or near their peak, all borrowing should be avoided, but if this is impossible, a policy of short term borrowing may be adopted until more favorable conditions prevail, and then the short term loans may be refunded. When it is anticipated that interest rates will fall gradually over a long period of years, borrowing should be curtailed and postponed, and the period of loan should be relatively short. The credit of the municipality will also influence the decision. If the credit is bad on account of reasons which can be removed

[1] It is of course bad public policy to leave the cities in this situation.

within a few years, all borrowing should be for short terms, in the expectation of future refunding at a time when credit has improved. But if the condition is destined to become worse, short term borrowing will only increase the city's difficulties. Price fluctuation is of more importance in controlling the spending policy than in influencing redemptions. Nevertheless, a period of high prices and depreciated currency is favorable for debt redemption, if it is fiscally possible, and a period of low prices is less propitious. If the city is in a position to pay off its bonds with cheaper dollars than those it received when the bonds were issued, there is a gain from the standpoint of the government. Finally, there is the problem of the existing debt. If the outstanding debt matures in large and irregular amounts, and no adequate provision has been made to equalize the burden from year to year, it may be necessary to do this by arranging for the redemption of the new borrowings during the years when other maturities are small.

It will be seen, therefore, that there are many involved factors which need to be taken into account in developing a wise borrowing policy. Once it has been decided that funds must be borrowed, the loans should be so arranged as to secure for the community the most favorable terms and also to result in the retirement of the debt as rapidly as the city government can do so, in view of other factors. The arbitrary rule relating bond issues to the life or usefulness of the improvements financed is not properly a rule of redemption at all. It is rather a factor to be considered when the borrowing policy is under discussion. If city authorities cannot arrange the term of the bonds for an improvement so that their redemption will fall within the useful life of such improvement, the wisdom of the projected outlay may well be questioned. This is a problem of spending, not a problem of paying, though the two are, of course,

inseparably linked. It is, however, a mistake to confuse the two. The practical result of this confusion in American cities is evident. Because the payment for an improvement during its life is a rule of spending, and because we have confused spending and debt redemption, we have assumed that the retirement of bonds during the life of the improvement is all that sound practice demands. This has led us to overlook the considerations stated above, and to extend municipal debts for periods which have been needlessly long. The redemption policy must not be controlled entirely by the way the borrowed money is spent. There are other factors which are more important than this one.

The Charter and the Debt

In the foregoing paragraphs little has been said with regard to legal provisions governing debt redemption. For almost every city, state laws, charter provisions or constitutional limitations have been established, which serve to limit the freedom of the city in determining its redemption policy. However, these limits are generally of such a character that they do not interfere with a prudent redemption policy. In any practical situation, a city must determine, first, the legal limitations under which it is operating and, second, the suitable policy of redemption within these limits. American cities have mortgaged their future unnecessarily by not taking this second step. They have made the mistake of assuming that the legal maximum limit was in all cases to be taken as the mandatory minimum.

Short Term Borrowing

Temporary borrowing takes various forms. The most common are: (1) short term certificates, bonds, etc., including tax notes, revenue bonds, special revenue bonds, tax sale bonds, etc.; (2) notes and bank loans; (3) tem-

porary transfers from special funds; (4) warrants in excess of available cash; and (5) unpaid bills and claims.

In the case of certificates, bonds, notes, and bank loans, a formal though simple procedure is required in the authorization and negotiation of the debts. Advertisement and public sale are not necessary. The loans are, therefore, generally placed locally, and often with the same banks which serve as the city's depositories. In some cases, the willingness to make such loans is an element considered in the selection of depositories. But in any case, the city enters into a formal agreement which involves the payment of interest and repayment of the principal. The interest rate varies from the "legal rate" down to rates which are lower than the market rate on bonds, depending upon the market and the financial skill of the city authorities.

For the protection of the city and the buyers of temporary notes or certificates, it is desirable to have the certificates just as carefully printed and endorsed as are the bonds of the city. This can be done by having the certificates printed or engraved with blanks to be filled in with dates, amounts, interest rates and signatures. These blank securities should be bound up, serially numbered, and perforated so that they may be torn out leaving a stub containing a recital of the essential facts.

Where special funds are drawn upon temporarily to finance general expenditures, even the formality of temporary borrowing is sometimes dispensed with. Surplus cash in funds for construction or other special funds is "transferred" and used for current financing with the intention of making the necessary reimbursements when taxes or other revenues are collected. If no separate bank accounts are kept for such funds, this process may go on unintentionally and without the knowledge of the officials, and certainly without the knowledge of the public. It is only natural that many of these transfers and

informal borrowings should be forgotten and that the special funds should never receive the reimbursement to which they are entitled. Cities in all parts of the United States and Canada have been guilty of these practices. On account of this, some charters prohibit such transfers under any conditions. Most authorities on municipal finance are opposed to the use of available cash in special funds for general purposes, regardless of the safeguards which may be set up through a good accounting system and through careful and skillful administration. It would seem, however, that this is making the remedy too severe. In some cities, cash is borrowed at 6 per cent from banks which have on deposit city special funds in excess of the amounts borrowed on which they are paying the city government but 2 per cent. With proper control and administration this unnecessary payment of interest can be avoided without putting special funds in jeopardy. Such loans and transfers should be made with just as much formality as is required for outside borrowings, and in the case of funds for investment, documentary evidence in the form of a note should be issued and placed with the other securities of the fund.

Though it is purely a matter of financial policy, it is generally considered that a bona fide fund is entitled to the interest which it earns. This is especially true in the case of sinking funds where the contributions to such funds are computed on the assumption that the funds will grow through the regular addition of earned interest. If the city is to pursue a consistent policy, it should pay a fair interest to any fund from which loans or transfers are made if such fund is entitled to receive the interest accruing on its balances and investments.

The worst form of short term borrowing is practiced by those cities which issue warrants when there is no money in the treasury or which follow the practice of allowing bills and claims to remain unpaid for long

periods of time until funds are available. This is also the most expensive form of borrowing, because it forces the financing, that is the waiting, back on those who work for the city or who sell supplies or services to the city. These are usually the persons least able to wait. They must, therefore, individually borrow money either on their personal notes or by discounting the city warrants at high rates to local money lenders. What else can a policeman or a school teacher do who is paid by warrants which will not be honored for several months? The situation is not quite so bad, perhaps, where the law provides that a warrant presented for payment shall draw interest at the legal rate until it is paid. The interest rate in such cases is inevitably higher than would be necessary if the city borrowed on its own credit and met its payrolls and current bills with cash. One of the immediate economies which city managers have very generally made in taking over city governments has been through putting all payments on a cash basis. There is no reason why other forms of city government should not make the same savings by the same means.

Long Term Borrowing

There are various types of long term bonds used by American cities. The most common are: (1) term bonds, (2) callable term bonds, and (3) serial bonds.

Term bonds are distinguished by the fact that the entire issue matures at once on a date fixed at the time when the bonds are sold. Under these conditions the bonds are usually retired from sinking funds; they are for this reason sometimes called sinking fund bonds.

Callable term bonds are term bonds which may be called in and retired by the issuing government before their maturity. Bonds issued for forty years but callable after twenty years are known as "twenty-forties." During the period when such bonds are callable they

may be retired a few at a time at the option of the city, thus resembling irregular or deferred serial bonds.

Serial bonds are bonds which mature in installments. If the installments are approximately equal throughout the life of the issue, the bonds are known as *straight serial.* An illustration of this is a bond issue of $1,000,000 of which $100,000 falls due each year for ten years. When the first installment is postponed for two years or more the bonds are *deferred serial bonds,* and if the installments are of arbitrarily different amounts falling due at various times they are *irregular serials.* An example of this is a $1,000,000 twenty year issue maturing $25,000 a year for ten years, $100,000 for each of the next two years, $50,000 a year for the next seven years, and $200,000 in the final year. When the installments are so arranged that the annual payment for retirement and for interest together are the same for each year, the bonds are known as *serial annuity bonds.* Table I shows how this may be done.

TABLE I

MILLION DOLLAR ISSUE OF 5 PER CENT FIVE YEAR SERIAL ANNUITY BONDS

Year	*Installment Retired*	*Interest Payable*	*Total Debt Service*
(1)	(2)	(3)	(4)
1	$ 181,000	$ 50,000	$ 231,000
2	190,000	40,950	230,950
3	199,500	31,450	230,950
4	209,500	21,475	230,975
5	220,000	11,000	231,000
Total	$1,000,000	$154,875	$1,154,875

In this table it is assumed that $500 is the smallest bond that will be issued. If smaller bonds are used the slight variation which appears from year to year in the total required for debt service can be reduced even further. Serial annuity bond tables are available which

make it a simple matter to compute the annual installments for bond issues of differing terms and interest rates.

Comparative Costs of Types of Bonds

In discussing the different types of bonds, financial authorities are continually referring to comparative "costs." It is frequently said that a serial bond is "cheaper" than a term bond. Such discussions really hinge on a definition of terms. What do we mean by "costs" and by "cheaper"?

The "costs" of a bond issue, in appropriation or tax dollars, are: repayment of the principal of the loan, interest on the loan, and the administrative expense. The date on which the various "costs" accrue is as important as the amounts, because time is part of the transaction. Assuming no change in purchasing power, $10,000 ten years ago is not the same thing as $10,000 today, or as $10,000 ten years from now. Ten thousand dollars paid in 1917 is worth $14,802 in 1927 and $21,911 in 1937. Or to put it another way, $10,000 to be paid in 1937 is worth but $6,756 in 1927.[1] The differences are due to time.

The accompanying Table II shows the comparative costs for interest and principal of borrowing $1,000,000 for twenty years with three types of bond issues: straight serial bonds, term bonds, and irregular serial bonds.

Columns 2, 4, and 6 of this table show the direct cost for retirement and interest of the various bond issues illustrated. The figures given in these columns are the amounts which must be raised in taxes each year for debt service. These are the figures frequently used to "prove" that straight serial bonds are cheaper than term bonds. It will be seen that the total for the serial bonds is $1,420,000. This is $51,635 less than the total

[1] Compounded at 4 per cent.

TABLE II

Comparative Costs for Principal and Interest of a $1,000,000 Bond Issue

Year	Cost of Straight Serial Bonds *		Cost of Term Bonds **		Cost of Irregular Serial Bonds †	
	When Paid	Present Worth	When Paid	Present Worth	When Paid	Present Worth
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1	$ 90,000.00	$ 86,538.47	$ 73,581.75	$ 70,751.69	$ 40,000.00	$ 38,461.54
2	88,000.00	81,360.95	73,581.75	68,030.46	40,000.00	36,982.24
3	86,000.00	76,453.69	73,581.75	65,413.91	40,000.00	35,559.85
4	84,000.00	71,803.55	73,581.75	62,897.99	40,000.00	34,192.16
5	82,000.00	67,398.02	73,581.75	60,478.83	40,000.00	32,877.08
6	80,000.00	63,225.16	73,581.75	58,152.72	40,000.00	31,612.58
7	78,000.00	59,273.59	73,581.75	55,916.08	40,000.00	30,396.71
8	76,000.00	55,532.45	73,581.75	53,765.46	40,000.00	29,227.61
9	74,000.00	51,991.42	73,581.75	51,697.56	40,000.00	28,103.47
10	72,000.00	48,640.62	73,581.75	49,709.20	40,000.00	27,022.57
11	70,000.00	45,470.66	73,581.75	47,797.30	140,000.00	90,941.32
12	68,000.00	42,472.60	73,581.75	45,958.95	136,000.00	84,945.20
13	66,000.00	39,637.89	73,581.75	44,191.29	132,000.00	79,275.78
14	64,000.00	36,958.41	73,581.75	42,491.63	128,000.00	73,916.81
15	62,000.00	34,426.40	73,581.75	40,857.33	124,000.00	68,852.80
16	60,000.00	32,034.49	73,581.75	39,285.90	20,000.00	10,678.16
17	58,000.00	29,775.65	73,581.75	37,774.91	20,000.00	10,267.47
18	56,000.00	27,643.17	73,581.75	36,322.02	20,000.00	9,872.56
19	54,000.00	25,630.69	73,581.75	34,925.02	20,000.00	9,492.85
20	52,000.00	23,732.12	73,581.75	33,581.75	520,000.00	237,321.24
Total	$1,420,000.00	$1,000,000.00	$1,471,635.00	$1,000,000.00	$1,660,000.00	$1,000,000.00

The rate of interest used in this table is 4 per cent. See footnotes on facing page.

for the term bonds. This is due to two factors. With $1,000,000 of twenty year serial bonds, $1,000,000 is not as a matter of fact borrowed for twenty years. One million dollars is borrowed for one year, $950,000 for two years, $900,000 for three years, and so on. With the term bonds the whole million is borrowed for the entire twenty years. But with the term bonds there is a sinking fund which earns compound interest. The difference shown above comes about in this way:

	Serial Bonds	*Term Bonds*	*Difference*	*In Favor of:*
Bonds to be Retired..	$1,000,000	$1,000,000		
Interest Payable	420,000	800,000	$ 380,000	Serial Bonds
Gross Costs	$1,420,000	$1,800,000	$ 380,000	Serial Bonds
Sinking Fund Earnings		328,365	328,365	Term Bonds
Net Cost to Taxpayers	$1,420,000	$1,471,635	$ 51,635	Serial Bonds

This apparent difference is not, however, especially significant, because the figures upon which it is based do not make proper allowance for time.[1] This time allowance is made in columns 3, 5, and 7 of Table II in which the "present worth" of all future payments on account of principal and interest is computed. It will be seen from the totals of these columns that they are all the same, to the last cent, and that they are exactly $1,000,000. This is inevitably so, and must be true for any kind of bond, because interest is the price of time, and when time is eliminated, nothing remains but the principal.[2]

* Annual retirement $50,000. Interest gradually reduced from $40,000 to $2,000 as the principal is retired.

** Interest $40,000 a year. Sinking fund contribution $33,581.75 annually, which will amount to $1,000,000 in twenty years compounded at 4 per cent.

† It is assumed that this issue will be retired as follows: $100,000 a year in the eleventh to fifteenth years and $500,000 in the twentieth year. Interest is thus $40,000 a year until the retirements begin and is then gradually cut down to $20,000.

[1] Some allowance is made for time in the compounding feature of the sinking fund earnings. But none is made elsewhere.

[2] If instead of bringing all the values back to the present time, we carry all the values forward to the end of the twenty years, the totals for the various bonds are again identical, because the time is the same in each case.

It has been argued also, that it is "cheaper" to borrow for a period not in excess of thirty-five or forty years because the total cost of a bond issue increases very rapidly while the average annual burden is reduced by a progressively smaller amount as the term lengthens. For example, the total cost of a $1,000,000 five per cent bond issue for forty-five years is $2,150,000, making an annual average of $47,778. If the issue is extended to fifty years, the total cost is increased by $125,000, that is, to $2,275,000, while the average *annual* burden is decreased by only $2,278, that is, to $45,500. Is it worth while to pay $125,000 in the end merely to cut down the annual requirement by $2,278? While this argument is correct if we are considering only the number of dollars which must be raised in taxes, it does not make proper allowance for time.[1] When this allowance is made, it will be found that there is no hidden cost advantage to be gained by shortening bond terms over and above the interest involved.

From the standpoint of practical administration the serial bond is usually less expensive than a term bond because it requires no sinking fund administration. This, however, is not a very large item. For example, in recent years sinking fund administration cost $3,000 in Newark, $11,000 in Cincinnati, $2,000 in Louisville, and $6,000 in Bridgeport. Other expenses are about identical, such as the costs of the bond attorney's opinion, advertising, sale; and the administrative costs involved in paying interest and principal when due. The accounting is somewhat more onerous for term bonds because of the sinking funds.

The element of risk is important in connection with the sinking funds. Usually only the largest cities can secure able and disinterested men to manage their sink-

[1] See New York State Legislative Document, No. 80, 1920, p. 82; also United States Department of Agriculture Bulletin, No. 136, p. 19.

ing funds. The danger is not so much from fraud as from bad management, from the misuse of sinking funds and from the failure to contribute regularly. When the city is hard pressed for funds, there is sometimes a great temptation to use the sinking funds, if there is any direct or indirect method of accomplishing this.

The sale price of the different kinds of bonds varies with the market. A generation ago, any type of serial bond was something of a novelty and was received less favorably than a term bond. This situation seems to be reversed today. The investor in municipal bonds is now thoroughly acquainted with serial bonds, and usually prefers them to term bonds. Serial bonds are also easier for the broker to handle, because the different maturities offer him an opportunity to meet the requirements of any investor. There is no particular difference in the marketability of regular as against deferred or irregular serial bonds, though the broker and the investor naturally tend to scrutinize the deferred and irregular issues more carefully since any departure from the normal type always raises a question. Callable term bonds sell on the basis of their least favorable maturity date. If ten-twenties are issued at a time when ten year money is drawing a higher interest than twenty year money, the bonds will sell on the twenty year basis. If the market for twenties is better, however, the price bid will be that for ten year money. The reason is obvious; the city may be expected to take advantage of its right to call whenever it can find cheaper money.

Consolidation of Bond Issues

When money is borrowed for several purposes at the same time, it is usually desirable to consolidate the loans into a single bond issue. It is much simpler from an administrative standpoint; it is somewhat cheaper, and generally results in a better price. When this is done,

however, it is necessary to exercise some care in fixing the term of the consolidated bond issue. The usual practice is to determine the term by averaging the different periods of the useful life of the various improvements to be financed, making due allowance for the amount to be spent on each improvement. But as has been pointed out above, useful life should not be the controlling factor in determining the retirement policy. If conditions warrant it, the consolidated issue may well provide for a shorter term than the average life would indicate.

Authorization and Sale of Bonds

The procedure to be followed in the authorization and sale of long term bonds is usually prescribed in laws, charters, and ordinances. Except within states which have uniform debt laws, these provisions differ from city to city.[1] It is necessary in each case to follow the legal provisions with the utmost care, even when they are inconvenient and of little or no apparent value. The validity and the marketability of the bonds may be jeopardized through a single inconsequential oversight.

The constitutional and legal provisions with regard to municipal debt deal with the *power* of the city to borrow and with the *procedure* which must be followed in authorizing and negotiating the loan. If a mistake is made with regard to power, the situation is very serious. In that case, even if bonds have been sold and outstanding for many years, the courts will declare them invalid and will refuse to allow the collection of taxes to pay their interest and principal. Mistakes in procedure are not so fatal. If bonds are sold without the proper formalities, and come into the possession of innocent purchasers, the validity of the bonds will not be questioned. In fact it is provided in some laws that defects of proce-

[1] Notable examples of states with uniform bond laws are New Jersey, North Carolina, and Massachusetts.

dure shall not be subject to question after a certain specified period.[1] Nevertheless, it is equally important from the standpoint of the city to have all questions of procedure handled in a precise and legal way. Otherwise, there may be costly delays and many doubts which arise from questionable procedure will serve to undermine the confidence of investors and so to decrease the price which the city receives. The cheapest course in the long run is to take every necessary precaution.

The accepted practice in selling bonds is to receive sealed bids to be opened in public at a specified time after public advertising. This is also usually required by law. Experience shows that there is no more dependable method of securing a fair price in the long run or of protecting the public officials against charges of fraud or incompetence, or the city against a bad bargain. It is important that the advertising should reach those who will buy. Advertising in local newspapers is generally required by law. It is useful even if no local bids are received, but the only sure advertising is that placed in the financial journals read by the bond buyers in the great money markets.

The printing and preparation of bonds is not something which can be trusted safely to any printer. The safest and the cheapest course for a small city far from the money market is to have the bonds printed by a recognized and experienced bank note company which will certify to the genuineness of the signatures and the seal.

Under conditions in most states, a city cannot afford to offer bonds for sale without agreeing to furnish the successful bidder with an opinion from a reliable bond attorney that the bonds in question are "binding and legal obligations of the city." The broker must have such an opinion in order to sell the bonds to the investors, so

[1] For a full discussion of the decisions and legal principles involved see Dillon, *Municipal Corporations*, Vol. II, Ch. 20; McQuillin, *Municipal Corporations*, Vol. V, Ch. 43.

that the price which he bids will make allowance for the cost of the opinion. It is also a good precaution to retain experienced counsel before the sale, to work with the local legal department and to prepare the opinion. It will then be possible to avoid and correct any mistakes before it is too late.

Each bidder should be required to deposit a certified check for not less than 2 per cent of the amount of bonds bid as a guarantee of the fulfillment of the terms of his bid. No interest is allowed on such checks. The checks of unsuccessful bidders should be returned when the bonds are awarded, while the successful bidder's check is held as a guarantee and is applied on the purchase price.

The Premium on Bonds

Because of abuses in debt management and because of the failure of the public and their elected representatives to understand discount, it is a common requirement of law that city bonds shall not be sold at less than par. From the standpoint of economics and finance such a provision is absurd, but from the standpoint of democracy and politics it is probably still necessary in the smaller and more remote districts. It is only a hindrance to the larger cities. Usually the market will pay a more advantageous price for a bond issued at a discount than for a bond issued at a premium. Under the present provisions of law, most cities are powerless to take advantage of such a market.[1]

The inevitable result of this requirement is that practically all bonds are issued at a premium. The city must be sure that the advertised rate of interest is high enough to attract bidders. To do this it must be slightly above the market rate, because no tenders at less than

[1] The model bond law prepared by the National Municipal League recommends that all cities be allowed to sell bonds at a discount of not more than 3 per cent.

par can be considered. The receipt of a premium is therefore usual. What should be done with the premium? In some cities during recent years, the premium has been treated as current revenue, and placed in the general fund and spent within the fiscal year. The effect of this is to borrow money for current expenses, because as a matter of fact future taxpayers will be called upon to pay to the bondholders interest higher than bonds sold at par would have required. The premium is borrowed money just as much as the rest of the loan, even if it does not appear on the face of the bonds. In certain cities the premium is placed in the sinking funds. If this is done, it should not be counted as a part of the current annual sinking fund payment. It should be placed in the fund before the annual requirement is computed. Any other method will result in reducing taxes for a single year at the expense of future taxpayers just as if the premium were placed in the general fund.

In New Jersey where large premiums were found to have been received and notoriously misspent, the state law has practically eliminated premiums by providing that no more bonds shall be sold at a bond sale than will produce the total face value of the bond offering plus one thousand dollars.[1] An illustration will make this complicated-sounding provision clear. If a municipality has authorized the borrowing of $1,000,000 with twenty-five year serial bonds at 4¼ per cent at a time when its bonds could be sold on a 4 per cent basis at par, the premium bid would be some $23,445 under the usual plan of sale. But under the New Jersey plan of sale no more bonds may be sold than will bring in $1,001,000. The bond buyer, therefore, agrees to give the city $1,000,000 and to take in return 978 bonds with a face value of $978,000. He would also bid a premium of approximately $600. If two bidders offer to take the same number

[1] New Jersey Laws 1917, Ch. 240, Sec. 6 (2).

of bonds, the competition is determined on the basis of the premium offered, which must not exceed $1,000. When the 978 bonds are turned over to the successful bidder, the 22 bonds which have the longest to run are retained by the municipality and destroyed. The effect of this plan is to cut down the period of the bond issue and at the same time to eliminate the premium. This plan cannot be manipulated to favor those who are in a position to administer it. Its practical operation has been entirely satisfactory. At first there was some criticism by the bond brokers that it was difficult for them to use their bond tables under such a plan of purchase, but this criticism has long since disappeared.

As a means of preventing the misuse of premiums, bond laws sometimes provide that the entire proceeds of a loan shall be devoted to the purposes of the loan or to the retirement of the debt contracted. If the premium is large, this is no adequate adjustment. It may tend to encourage extravagance in the expenditure, because the original bond issue is supposed to have been adequate to meet the expenditure program without the premium. If, on the other hand, the premium is used to retire the debt, this can only be done by placing it in a sinking fund, by buying bonds in the market, or using it to pay off maturing installments. If care is not taken, this will result in relieving current taxes, and may have the same effect as diverting the funds to current expenditure.

Public accountants have recommended that a reserve be established from premiums so that they may be amortized scientifically during the life of the bonds for which they were received. The result is to distribute the premium fairly over the years and to decrease future tax payments for interest. This plan is thoroughly sound, though it involves complicated accounting.[1]

The best advice, therefore, for cities which are not per-

[1] F. Oakey, *Principles of Government Accounting and Reporting*, p. 77.

mitted to sell at a discount is to fix the rate of interest on the bonds after consideration of market conditions so that there will be little or no premium to dispose of.

Sinking Funds

The sinking fund is a means of liquidating indebtedness; it is also a means of distributing the burden of retiring term bonds evenly over the years, without upsetting the flow of municipal finance. It is usually accumulated from year to year and invested in first class securities so that the payments into the fund plus the earnings from investments will equal the debt to be retired on the date it falls due.

Sinking funds are sometimes used also to pay interest. There is nothing, however, to be gained by this from an administrative standpoint. Interest payments on term bonds are by their very nature uniform from year to year so that there is no need of accumulating a fund in order to spread the burden. Moreover, experience shows that the payment of interest from sinking funds is a dangerous practice because bonds are frequently issued too late in the year to make an appropriation for the first half-yearly interest. When this interest is paid from the sinking funds, it produces a shortage in the amount accumulated for bond retirement. Some bond dealers argue that the bond holder is afforded additional protection when interest as well as principal is payable from a sinking fund. This may be true if the sinking fund is entitled to a special unlimited tax levy of its own, but this has not been a matter of sufficient importance to have any demonstrable effect on the prices paid for city bonds. The bondholder cares little, provided the debtor city is able and willing to pay taxes and has a reputation for meeting its obligations.

Sinking funds are sometimes used to retire regular serial bonds. This again is a mistaken practice, unless of

course, it is required by law. In the case of regular serial bonds the burden of redemption is already evenly distributed, so that there is no need of a sinking fund. Nor is anything gained from the standpoint of investment earnings. Little time elapses as a rule between the collection of taxes and the payment of maturing serial debts. To clear such payments and retirements through the sinking fund only adds to the work of bookkeeping and serves no useful purpose.

Sinking Fund Contributions

Sinking funds are built up from increments from various sources. These are derived from special taxes; general taxes; the revenues of utilities; special assessments; premiums on bond sales; unappropriated balances of capital funds; special minor revenues, such as certain forfeits, fines and fees; and finally from interest on sinking fund investments. Taxes are the most important, and in the last analysis, must make up whatever the others fail to contribute. If interest earnings fall below estimates, taxes must be increased correspondingly; if special assessments cannot be collected, taxes must take up the loss; if utilities cannot be made to pay their share of the sinking funds, taxes must "hold the bag."

In some cities certain miscellaneous revenues flow by law directly into the sinking funds. It is clear that the only effect of this process is to decrease the revenues going into the general fund of the city and to decrease at the same time and in the same amount, the city's appropriation and tax levy for the sinking fund. There is nothing to be gained by this. It is a violation of good budget practice and results in an uncertain contribution to the sinking funds. It is therefore not to be recommended.[1]

Contributions to sinking funds are usually made at

[1] See above, page 70.

stated times. The time is fixed in relation to the fiscal year and to the periods of tax collection. The amount of the annual or semiannual contributions is arrived at in various ways. It is often written into the charter or prescribed by state law. Sometimes a fixed millage is required, in other cases a certain percentage of the debt is specified. Such provisions are not sound. The amount which is necessary as a matter of fact depends upon (1) the rate of interest earned by the sinking funds, (2) the amount of bonds to be retired, and (3) the date on which the bonds fall due. Fixed and specific legal provisions cannot make allowance for all of these variables, and as a result sinking funds set up in accordance with these fixed rules seldom conform to the actuarial needs. They are too large, or they fall short of the requirements.

It is not a difficult matter to compute the required annual contribution to a sinking fund. Of the three variables, two are known: the amount to be retired and the date of maturity. The probable rate of interest which will be earned each year can be estimated. The work of computation may be greatly simplified by the use of sinking fund tables. In making such computations it is important to determine accurately the number of sinking fund contributions which can be made. If the city appropriations for the year have already been adopted when a new set of bonds is issued, the first payment to the sinking fund cannot be made until the following year. Under such circumstances only nineteen annual sinking fund contributions can be made for a twenty-year bond. If the contributions are computed on the basis of twenty payments, it will be found that the bonds fall due before the last payment has been made, and the fund will be short to the extent of the contribution and the interest which it would earn.

The following example will illustrate the method of

computing actuarially the annual sinking fund requirement. If a city borrows $50,000 for ten years and it is estimated that the sinking funds will earn 4 per cent, how much must be set aside each year in order to produce a fund to retire the bonds when they mature? Turning to a sinking fund table,[1] it will be found that $.0832909 must be set aside and invested at 4 per cent each year to produce $1 at the end of ten years. As $50,000 will be required in this problem, the $.0832909 must be multiplied by 50,000. This is $4,164.55, which is the annual sinking fund requirement. If the payments to the sinking fund are to be made semiannually and immediately invested, the same tables may be used and the required contributions computed provided the rate of earning is divided by two and the term of years multiplied by two. In this problem, we should therefore ask: how much must be set aside in a sinking fund at the end of each of twenty periods assuming that 2 per cent will be earned each period? For $1 the required amount is shown by the table to be $.0411567, so that for $50,000 it will be $2,057.84. Two such payments will come to $4,115.68, which is the annual requirement.

Sinking fund requirements should be recomputed annually. With such a policy gradual adjustment is made from year to year to allow for higher or lower interest earnings on the investments. In making such computations it is necessary to figure separately the amount needed for each individual bond issue, even when only one consolidated sinking fund is maintained.

If it is found at any time that the sinking funds are larger than necessary as a result of conservative management and fortunate investments, or that the funds are short as a result of inadequate contributions, low return on investments, losses or diversion of funds, care-

[1] There are many standard tables. The United States Department of Agriculture Bulletin, No. 136, contains tables.

ful consideration must be given to the restoration of the funds to a proper balance. Where the funds are excessive, as a result of a consistent high rate of earning, it is considered good practice to use a higher estimated rate of earning in making the computation for present and future sinking fund installments, provided of course the present investments and the expected general trend indicate a continuation of the higher return. In any case a new computation of the annual requirements will serve to distribute the benefit of the surplus over the present and future years. This is usually fairer than taking the entire benefit in the year in which the surplus is discovered. If the funds are found to be insufficient, the first step is to compute the amount which should be paid in immediately to restore the funds. If this throws too heavy a burden on the present year, then the future installments required to restore the sinking fund by the time the bonds mature must be computed. If this again is too large a burden partial refunding must be resorted to. Where separate funds are maintained, a surplus in one fund may be used to offset a deficiency in another fund of the same class. A surplus in water bond sinking funds should not be used to offset a shortage in school bond funds when the former is financed from water rates and the latter from taxation. Normally, a large surplus which cannot be absorbed by the sinking fund itself should be spent for permanent investments only.

Sinking Fund Investments

Sinking fund investments are severely restricted by law in most states. All except public bonds are generally excluded. There is, therefore, little opportunity for a loss of sinking funds through bad investments. The greatest mistakes that can be made are the failure to invest promptly and the selection of bonds whose maturities are so arranged that they cannot be liquidated

readily when the sinking fund is called upon to pay cash. Both of these blunders can be avoided by intelligently planning ahead. The receipts of the sinking fund and the payments from the fund can be counted on to the day, the hour, and the minute. Under these conditions bad management is inexcusable.

When it comes to making investments, all of the sinking funds of a city should be merged and handled as a single fund as far as this is possible under the state laws and the city charter. This reduces idle funds and simplifies the management of the investments. The consolidation of all sinking funds for investment purposes does not mean of course that no separate funds should be maintained. This is governed by law. It may be said, however, that the fewer funds there are the better, provided the administration is satisfactory. A large number of funds merely complicates the problem.[1]

Should the sinking fund of a city be invested in the city's own bonds? This is a much debated question. The bond brokers condemn this as a vicious policy. The argument is that the sinking fund is a definite asset which the city promises to create to pay off particular bonds. If the fund is invested in the city's own bonds, then it is claimed, the asset is impaired. If a city should default, and the bondholder should turn to the sinking fund, what would he find? Only other bonds of the same city, which by the same token would be impaired. If the sinking funds were invested in the bonds of other governmental units, there would be at least some security for the bond holder. On the other hand, it is urged that this argument of the bond brokers is based on highly improbable and theoretical grounds. The taxpaying capacity of the city is the only ultimate security of the bondholder. When any part of the debt is retired, taxpaying capacity is to that extent relieved. When a city

[1] See above, page 70.

buys its own bonds for its sinking funds it is true that the sinking fund may be considered to be less than it was, but the outstanding indebtedness must be considered to be correspondingly reduced. In other words, the tax-paying capacity is correspondingly relieved to meet the remaining obligations. Both resources and obligations are in effect reduced equally, so that the net worth or power upon which the bondholder relies remains the same. While this statement does not quite meet the theoretical argument of the bond brokers, it is generally accepted by students of municipal finance as satisfactory because of the important practical considerations involved. If a city can buy its own bonds as sinking fund investments, it can to a certain extent become its own banker and make itself independent of the money market for extended periods of time when this is particularly desirable. Then, too, when bonds are sold directly to the sinking funds, the costs and delays of sale can be materially reduced because it makes little difference what interest rate is specified in the bond. What comes out of one pocket goes into the other. It is important, however, to guard against the use of the sinking fund as a "blind" by means of which the bonds of a city may be sold without proper public notice to favored insiders. Experience so far has amply demonstrated the great advantages and economies of permitting cities to invest in their own bonds and has not disclosed the dangers which have been feared.

It is preferable to keep the uninvested cash of the sinking funds in a separate bank account. It is usually possible to secure a higher rate of interest on such balances than can be secured on the other funds of the city government.

Sinking fund securities should be kept at all times in a vault or safety deposit box. Access to the securities should be restricted. It is customary to require two

responsible officials to be present whenever the vault is opened or closed and the securities are handled.

There should be an annual audit of the sinking fund investments and cash by some authority independent of the sinking fund administration, and all sinking fund transactions should of course be audited by the controller in the performance of his regular duties.

Because of the conservative nature of sinking fund investments and the practices of public finance, par value and market value are seldom far apart. The question nevertheless arises, whenever the capital value of the fund is determined: Shall the value of securities be taken as the purchase price, or the market value at the time of the audit, or the par value? The same problem arises with endowment funds. In that connection, it is generally agreed that securities shall be listed at purchase price and that premiums shall be amortized in order to maintain the endowment principal.[1] In the case of sinking funds, the earnings are a minor consideration compared to the security of the fund itself. The first purpose of the fund is to produce a given capital sum in cash on a given future date. This purpose and date must therefore control the evaluation of the securities, and they should normally be listed at par, while the premiums paid and the discounts received are amortized fairly over the life of the fund in arriving at annual earnings. But if, in violation of sound principles of sinking fund investment, securities are held which mature after the sinking fund, they cannot safely be listed at more than market value. This is especially true of such investments as the railroad stocks and bonds held in the sinking funds of many New England cities. Such investments are generally prohibited by law, but where they exist they must be examined with care and frankness. While these general rules should control the evaluation of the securities,

[1] Trevor Arnett, *College and University Finance*, pp. 36, 72.

it is clear that the sinking fund administrators must have laid before them periodically an itemized statement showing both par value and market value, as well as nominal and effective interest rates, as a guide in selling and buying securities. The preparation of tabulations of this character is frequently neglected by the secretaries of sinking fund commissions because they do not know how simply it can be done with the aid of the proper tables and mechanical devices.[1]

Management of Redemption and Interest Payments

In the actual management of redemption and interest payments there are five steps: the estimate of the cash needs, the provision of the funds, the exchange of cash for matured bonds and coupons, the recording of the transactions, and the cancellation of the documents. In these phases of debt administration a bond ledger and a maturity calendar are indispensable.

Bond Ledger

There is no need of saying that the city department of finance must have a bond ledger with a complete statement of conditions surrounding each individual bond issue. In many cities, this bond record has a column for each and every bond with a line for the entry of each semiannual interest payment and for the final retirement. The effect of this is to require a large amount of often useless bookkeeping. In a large proportion of the jurisdictions in which such records have been examined, the detailed entries are not kept up. In a busy office it is hard to find time for apparently useless work. It is generally sufficient to keep a record which will show the transactions in interest and redemption payments on each issue together with the name and series number of

[1] Even the effective interest rate of bonds bought above or below par can now be computed quickly and accurately by means of a mechanical device not unlike a slide rule, such as the *Darville-Johnson Bond Yield Chart*, published by Prentice-Hall, New York.

each issue, the amount, the denomination and number of bonds, the coupon rate, the date of issue, the date of sale, dates of maturities, place where payments are due, the name of purchaser, the purchase price (separating interest accrued), the effective interest rate, and references to authorizing enactments and the legal opinion. In the case of serial bonds, there should be separate lines for each group of bonds maturing at a given time. This facilitates the computation of interest and redemption requirements. Under each block of bonds the serial numbers of the bonds should be listed individually and so spaced that they can be used as an index for reference to subsequent blank pages in which any unusual circumstance can be recorded, such as the failure of the bondholder to present interest coupons, or the bond itself for payment on the date it becomes due. The bond ledger should tie in with the controlling accounts of the city. In the case of registered bonds, registrations may be made in the bond ledger, though a separate registration book is usually used.

Maturity Calendar

As soon as a block of bonds is sold, the department of finance should make a complete listing of the future dates of payment on account of the bonds. For a million dollar issue of 4 per cent serial bonds dated as of August 1, 1927, maturing $100,000 a year for ten years, the future requirements would be somewhat as follows:

1928	February 1	.....	$ 20,000
	August 1	.....	120,000
1929	February 1	.....	18,000
	August 1	.....	118,000
1930	February 1	.....	16,000
	August 1	.....	116,000
Etc.	Etc.	.....	Etc.
1937	February 1	.....	2,000
	August 1	.....	102,000
	(Final Payment)		

When this is consolidated with a similar calendar for all other loans, it will be seen that there may be payments falling due in every month of the year and at odd times during the months. The knowledge of this fact is essential in estimating the cash needs.

If the municipality has specified different places of payment in its bonds, a separate column should be provided for each one. This may be done as follows:

Date	Payable at			Total
	At. & P. Trust Co. New York City	T. G. & F. T. Co. Chicago	City Treasury	
(1)	(2)	(3)	(4)	(5)
1927 Jan. 1	$155,000	$ 35,000	$ 10,000	$200,000
Feb. 15	50,000	—	100,000	150,000
Mar. 1	133,333	—	166,666	300,000
15	25,000	10,000	—	35,000
20	—	—	55,000	55,000
Apr. 15	1,040	—	—	1,040
May 1	—	—	5,200	5,200
15	510	10,000	—	10,510
Etc.	Etc.	Etc.	Etc.	Etc.

A schedule of this sort will show not only the totals which must be made available on a given date, but the points at which the funds must be on hand.

The provision of funds for the payment of interest and the retirement of indebtedness in accordance with the schedule of payments is a problem of general budget administration. It enters into the allotments [1] which must be made against the appropriations to cover all of the city expenditures and payments, except for that part which is drawn directly from the sinking funds. The provision of the funds and their transfer to the proper points of payment on schedule time is of the utmost importance. There are no other payments which a city makes in which promptness is of so great importance as debt pay-

[1] Allotments are discussed above, Chapter IV, page 106.

ments. A slight delay caused by mere oversight may undermine the credit of the city to such an extent that many years will be required for its restoration. The city can save itself some interest and much manipulation if bond offerings are so planned that the interest and maturity dates fall soon after tax collections.

Payments

When bonds or interest coupons are presented for payment at the office of the treasurer of the city, payment may be made in cash or by check at the option of the bondholder. Bonds or coupons sent in by registered mail are paid by check. Those sent in for collection through clearing houses are met in the usual way, the balances being liquidated by check. When the place of payment is a bank, credits must be set up and transferred to the bank or trust company which is serving as fiscal agent for the city. As the bonds or coupons are redeemed by the fiscal agent they are cancelled and dated and sent to the treasurer's office of the city. They must be checked against the bank statement in order to verify the daily balance if the city is entitled to interest on this basis. On the receipt of the bonds and coupons by the city, they should be cancelled, preferably with a perforated stamp if this has not already been done by the bank, arranged in numerical order, and checked back to determine what bonds or coupons are temporarily missing. These missing numbers will be turned in from time to time, though some may be lost for several years and others may never be presented for payment. It is, therefore, necessary to keep an accurate record of the situation. In some cities the interest coupons are pasted up in books which have been ruled with a space for each coupon. The blank spaces call attention to the missing numbers. It is simpler, however, to tie up the coupons in serial order in small bundles with a separate bundle for each maturity

date and bond issue. The sorting of coupons can be immensely facilitated if some attention is given to the color of ink and paper of coupons and bonds.

After a period of years it is customary to burn the cancelled bonds and coupons in the presence of two or more officials, one of whom should be the controller. This should be done after all of the documents have been checked back and the missing numbers indicated in the bond registers for future reference.

The redemption of registered bonds follows the same course as that of the coupon bonds. The payment of interest, however, is always by check. These checks should be made out well in advance, dated as of the due date and mailed so as to reach most of the bondholders on the due date. The obligations of a city are discharged if the checks go out on the payment date. It is desirable, however, from the standpoint of the credit of the city to send the checks out slightly in advance.

Payments on account of all bonds should be handled by a single agency of the city government. There is useless duplication and confusion if sinking fund bonds are handled through one agency and serial bonds through another. For this reason it is the practice in many cities to turn over all coupon and bond payments to the sinking fund authorities. It would be more consistent to have the payments made directly by the city treasurer, on the approval of the controller, just as all other city payments are handled. The sinking fund authority would then be responsible solely for the investment of funds turned over to it by the treasurer and the liquidation of investments to meet maturing bonds.

It is usually wise for a city to make arrangements with some bank or trust company to serve as its fiscal agent in handling debt redemption and interest payments. This is imperative if the city is far from its money market. This practice improves the marketability of bonds,

simplifies the payment of interest and redemptions and can be arranged for at a nominal sum.

Municipal Debt Limits

Though there are many varieties, practically every city has a legal debt limit. The most common form of limitation is that which prohibits the issuance of bonds which when added to those already outstanding, less existing sinking funds, will carry the total to more than a certain percentage of the assessed value of property subject to taxation by the borrowing authority. This percentage limit runs from 1½ to 25 per cent, the most common rates being from 5 to 10 per cent, and the "assessed value of property" against which this is measured generally includes real and personal property, but sometimes includes only real estate.[1] It may also be based on an average of several years, or upon the roll of the previous or of the current year. There are other methods of limiting the amount of indebtedness such as charter restrictions expressed in fixed sums, limitation of total expenditures, limitations in relation to the indebtedness of other overlapping units, limitation of annual retirements, and restrictions upon the annual taxes or tax rates for debt service. This latter is particularly vicious. It undermines the credit of the city and is as a matter of fact not a direct limitation of indebtedness.

Another form of restriction has been introduced in Indiana where the state board of tax commissioners has the power of veto over local bond issues. In Massachusetts a variety of central administrative control is developing not so much as the result of law as of the growing practice on the part of local officials of consulting with the state director of accounts, in the department of corporations and taxation, when a bond issue is under consideration. Administrative restriction of this charac-

[1] L. Lancaster, *State Supervision of Municipal Indebtedness*, p. 29.

ter is new in the United States, but it has been used extensively in Europe and in Canada.

Debt limits do not in all cases extend to all kinds of bonds. Water bonds and bonds issued to finance revenue producing utilities are in many states entirely outside of the regular debt limit and in some states outside of all debt limits. The same is true of special assessment bonds under certain conditions.

The Seven Per Cent Law

The most important debt limit, however, is entirely unofficial as far as most of the cities of the country are concerned. It is not in their charters, or in the laws or constitutions of their states. It is section 239, paragraph 5, of the banking law of the State of New York. This section provides:

> If at any time the indebtedness of any such city, together with the indebtedness of any district or other municipal corporation or subdivision except a county, which is wholly or in part included within the bounds or limits of said city, less its water debt and sinking funds, shall exceed seven per centum of the valuation of said city for purposes of taxation, its bonds and stocks shall thereafter, and until such indebtedness shall be reduced to seven per centum of the valuation for the purposes of taxation, cease to be an authorized investment for the money of savings banks.

This provision controls trust fund security investments as well, under section 21 of the personal property law. Such a large proportion of municipal bonds is purchased by New York State savings banks and trust funds and by banks in states which have copied the New York law, that this provision virtually controls the market. No city can go beyond the "seven per cent law" without paying for it. It is, therefore, important for a city to keep an informal record of the indebtedness of any districts or municipal corporations which overlap its boundaries as a supplement to its own official debt records.

CHAPTER XV

FINANCING MUNICIPALLY OWNED UTILITIES

Municipal ownership of certain public utilities has been widely extended in recent years. The utility most commonly owned by city governments is the water supply system. In fact, water supply systems are now largely owned and operated by the cities which they serve. Three other important utilities—gas, electric light and power, and electric railways—are sometimes municipally owned and operated. A few city governments have also undertaken a number of other utilities, such as terminal railroads, grain elevators, warehouses, coal yards, and ice plants.

Being necessarily limited in its scope, this chapter is confined entirely to a discussion of the more important factors in the financing of municipally owned water supply, gas, electric light and power, and electric railways. Such factors are more or less general in their application to these utilities and are so treated in this discussion. They relate to the acquisition by purchase or construction of the utilities and their subsequent extensions; to the cost of operation, maintenance, fixed charges and debt retirements; and to the charges for services rendered by the utilities.[1]

Financing the Acquisition and Extension of Utilities

In acquiring and extending public utilities, city governments find it necessary to provide funds for the fol-

[1] In the preparation of this chapter the writer has drawn on several sources. Those which have been particularly helpful are the following: John Bauer, *Effective Regulation of Public Utilities;* L. R. Nash, *The Economics of Public Utilities;* and W. G. Raymond, *The Public and Its Utilities.* For the general reader, Professor Raymond's book gives an excellent presentation of public utility problems.

lowing purposes: (1) purchase or construction of the plant or system, (2) service connections, (3) working capital, and (4) extensions to the system. The different methods of securing funds for these purposes are discussed below.

Purchase or Construction of the System

The first step in the financing of a utility system, whether the city government buys it from private operators or builds it, is to provide funds to meet the initial cost of such a system. Regardless of the kind of utility —water supply, gas, electric light and power, or electric railways—these funds are usually secured by the issuance of bonds. It is generally assumed that the term of the bonds should not exceed the useful life of the physical parts of the utility.[1] However, the fact that the useful life of the different parts of a given utility varies greatly is often overlooked. For example, a water supply system consists of various parts for the collection and storage of water, such as reservoirs, dams, filtration plants, and intakes, all of which are relatively permanent. In addition, the system includes water mains, valves, gates, and sometimes pumping stations, which are concerned with the distribution of the water and which are not as durable as the other parts. If all these things are to be taken into consideration, it can be seen that the problem of fixing the term of the bonds is a complicated one.

Some utility authorities maintain, and with good reason, that when properly kept up, a utility property as a whole is permanent, or relatively so; hence, there is no correlation between the term of the bonds and the life of such property. If renewals are systematically provided for either by way of depreciation reserves or through direct charges to operating expenses, there is

[1] For a discussion of this point as it relates to permanent improvements see above, pages 472 ff.

no reason for limiting the term of the bonds. Utility bonds should, therefore, be issued for fairly long terms, say, forty or fifty years, but not less than thirty years. If the bonds are paid off and not refunded when due, this long period usually permits them to be retired out of earnings without unduly burdening the rates.

The cost of preliminary work in acquiring the utility, such as advertising charges, engineering services, legal services, and inspection and supervision of construction, should be met out of the bond money, unless the city government is able to appropriate for it out of general funds. This expense, however, may be properly regarded as a part of the cost of creating the enterprise.

The experience of certain cities in financing the purchase of street railway systems is worthy of note at this point. These cities are San Francisco, Detroit, Seattle, and Toronto. In each of these cases the city acquired the system by purchase, although Detroit undertook in 1920 the construction of an independent municipal system before acquiring the private lines. The main features of the financing methods employed by these municipalities in the acquisition of street railway properties are briefly summarized below.

San Francisco has been operating a municipally owned street railway system since 1912. The first bond issue for this purpose, amounting to $2,020,000, was authorized at an election held during December, 1909. These bonds were issued for a term of thirty years; they bear interest at the rate of 4½ per cent and mature serially $101,000 each year from 1915 to 1934. Subsequent issues have been of the same type but bearing a somewhat higher rate of interest. Bond issues for street railway purposes are independent of the city debt limit.

In 1920 Detroit authorized by referendum a bond issue of $15,000,000 to provide funds for the contemplated construction of about 100 miles of new street railway

lines and the acquisition of about thirty-four miles of privately owned nonfranchise lines. These bonds were of the sinking fund type, the term being thirty years. Subsequently, an issue of $1,500,000 thirty-year serial bonds was authorized for equipment and additions to that system. In 1922, after extended negotiations with the Detroit United Railways Company, the acquisition of the lines of that company for $19,850,000 was authorized by a referendum. The purchase agreement called for an initial payment of $2,770,000; semiannual payments of $500,000 over a period of ten years; the balance, amounting to $7,580,000, becoming due December 31, 1931. A bond issue of $4,000,000 thirty-year serial bonds was authorized at the time authority was given to purchase the lines.[1] Funds obtained from this source were used in part to meet the initial payment of the purchase price and to acquire certain supplies from the Detroit United Railways Company and in part to provide working capital for the municipal system. Street railway bonds in Detroit are not exempt from the debt limit.

The city of Seattle in 1919 acquired the privately operated street railway system at a price of $15,000,000. Independent appraisers estimated that the purchase price exceeded the fair value of the system by from seven to eight million dollars.[2] The purchase agreement required that the company be paid in twenty-year serial bonds drawing 5 per cent, the first installment becoming due in 1922 and the balance at the rate of $833,000 per year for eighteen years. These bonds are not exempt from the city debt limit.

The privately owned street railway system of the Toronto Railway Company was acquired by the city of

[1] "The Finances of the Department of Street Railways of Detroit," *Public Business*, Detroit Bureau of Governmental Research, June 30, 1923.

[2] Paul H. Douglas, "The Seattle Street Railway System," *Journal of Political Economy*, June, 1921.

Toronto in 1921. Funds to make the purchase which amounted to about $13,000,000 were provided out of twenty and thirty-year serial bonds. Extensions to the Toronto system are financed in the same manner as the original acquisition, that is, by twenty and thirty-year serial bond issues. The present policy, however, seems to be to issue twenty-year serial bonds. Street railway bonds are exempt from the city debt limit.

In the case of both the Seattle and Toronto street railway systems where twenty-year bonds have been issued, it appears that the payment of these bonds during this short period will burden the users with a rather heavy charge. Especially is this so, if renewal or depreciation reserves are fully maintained in addition to the retirement of the debt. Of course, the interest must be met in any case.

The application of special assessments to the financing of rapid transit systems is of interest in this connection. Proposals of this character have been made in a few of the large cities, notably New York and Philadelphia, but they have not been put into practice on an extensive scale.

San Francisco began in 1913 to finance by special assessments the construction of tunnels in its municipally owned railway system.[1] The Stockton Street tunnel was the first one financed by this method. It was completed in 1915 at a cost of $631,000. This entire cost was met by special assessments on two irregular districts extending away from each end of the tunnel. In 1917 the Twin Peaks tunnel, a much larger project, was completed. The entire cost of this tunnel, amounting to $3,995,000, was met in the same manner as the Stockton Street tunnel. In 1926 the building of the Duboce-Sunset tunnel was begun. It is estimated to cost $1,653,000 and is to be

[1] This work was authorized by Ordinance No. 2186 (New Series), approved February 19, 1913.

financed by special assessments in the same way as the other tunnels. In each instance, the cost of laying tracks in the tunnel, making extensions beyond the tunnel, building car barns, and purchasing new equipment for the extensions was paid for by the city government either from surplus earnings of the municipal railway, depreciation reserve, or bond issues.

The voters of the city of Detroit recently adopted a plan for the financing of rapid transit construction involving the use of special assessments.[1] The plan assumes that rapid transit facilities convey, (1) a general benefit to the city at large, (2) a special benefit to the property in the vicinity of the transit lines, and (3)a direct benefit to the riders. The plan distributes the estimated cost of $4,700,000 per mile among these. An assessment of 17 per cent of the cost is to be distributed over the city at large. The amount of this levy, estimated at $800,000 per mile, is to cover one fourth of the permanent way cost. Fifty-one per cent of the anticipated cost, estimated at $2,400,000 per mile, is to be assessed against the property in the vicinity of the lines. This amount is intended to cover three fourths of the permanent way cost. It is to be assessed on the basis of proximity over an area extending approximately one half mile on each side of the proposed lines. The maximum benefit is assumed to accrue to the property adjacent to or near the stations, which is marked off into six zones with different assessment rates per square foot. These zones are extended so that all property between the stations and along the line is included in some zone. The special assessments are payable over a period of ten years. The remaining 32 per cent of the cost, estimated

[1] See *Proposed Financial Plan for a Rapid Transit System for the City of Detroit*, Rapid Transit Commission, November 27, 1923. This plan was adopted by a referendum on September 9, 1924. An act (No. 224), redefining and limiting the provisions governing subways, was passed by the 1925 Michigan legislature. The city charter was amended in accordance with this act by a referendum on November 3, 1925.

to be $1,500,000 per mile, is to be provided by the sale of mortgage bonds. This amount represents the riders' share of the cost and is to be used to purchase equipment. The interest and sinking fund charges on these bonds are to be paid out of the revenue of the system, in other words, out of the riders' fares.

Service Connections

Ordinarily no service connections are built for street railways. Customers come to the place constructed to receive the traffic. In the case of water, gas, or electric utilities, service or house connections must be made before customers can be served. In constructing a utility system of this character, mains or trunk lines are laid in the streets, but service connections are not ordinarily made at the same time. It is more or less common practice to make these connections at the request of the customers and to assess the cost against the property served by such connections. In the case of water supply, the owner of the property is generally required to pay for the service pipe, the amount of the charge being limited to the cost of installing the pipe from the property line or curb box to the meter. The service line from the main to the curb box is usually regarded as a part of the distribution system.

The distribution of gas, electric, or water service requires proper measuring devices or meters. In the case of gas supply and electric energy meters are universally used and accepted as proper by the using public. But this is not generally true of water; many cities do not meter their water supply. It has been considered in a different light from gas and electricity, as being more or less free like air. There is, however, a growing appreciation of the need for complete metering of city water supply as a means of securing economical administration and of determining equitable charges for the use of water.

This has led many cities with unmetered water supplies to consider the adoption of a definite program for installing meters throughout the water supply system. In a large city such action involves a considerable expenditure, and the financing of such work may constitute something of a problem.

The problem of financing the installation of meters immediately raises the question of whether the city or the consumer should own the meter. Public service and utility commissions usually consider the meter as an integral and necessary appurtenance of the water distribution system and, as such, they are of the opinion that it should be owned by the utility. The same ruling has been applied to municipally owned water supply systems. Mr. Allen Hazen, in discussing the ownership of meters for measuring water supply, says:

> With respect to the meter there is no question but what it is the best policy for the works to furnish it and to own it. This is the only method that gives the works the full control of the meter, with power to take it out and test it and replace it with a new meter, or repair it whenever the conditions of service make it desirable.[1]

When a city government undertakes to install water meters throughout a large system requiring a considerable expenditure, it is generally advantageous to distribute this expenditure over a term of years. Under this arrangement the city government can proceed with the installation of a certain number of meters each year. Perhaps the most satisfactory method of financing such work is through the issuance of bonds. Since the average useful life of a water meter is estimated at twenty years, bonds of a like term may be issued for this purpose.[2] Of course, the same plan may be followed in the

[1] Allen Hazen. *Meter Rates for Water Works*, p. 106.

[2] However, the installation of meters in Chicago is being financed from revenues from the sale of water. An ordinance passed September 1, 1925, provides for universal metering of the city's water supply. It changed the water rates so as to increase the revenue by about 8 per cent.

financing of meters by bonds as in the case of financing other parts of a water system. Long term bonds—thirty or forty years—may be issued for this purpose, and renewals of the meters may be provided for out of earnings.

Working Capital

Working capital consists of the cash used to cover the expenses of daily operation, which must be met before the receipts from service are available; it also includes the cash that has gone to purchase supplies which in some cases may have been converted into service material, such as water in reservoirs or gas in holders. Utilities require working capital at all times to carry on their operations, but we are considering here only the working capital required when operations are first begun. The amount of this capital depends upon the character of the utility and upon the period that elapses before payment is received for the service rendered by the utility. In the case of street railways, fares are collected in advance or at the time of the rendering of service. Nevertheless, such railways usually find it necessary to carry large quantities of supplies, and therefore require considerable working capital for this purpose. In the case of water, gas, and electric utilities, services are rendered before payments are made. Usually a period of from one to three months, sometimes longer, elapses before payment for such services. This means that working capital must be provided to meet all operating expenses, including the purchase of supplies, during this period. Such capital may be secured by increasing the amount of the regular bond issue for the acquisition of the utility, or it may be secured by selling short term bonds to be retired when the charges for service have provided sufficient surplus. The latter method necessitates high charges at first when the charges are likely

to be higher than normal for other reasons. The former method obviates this difficulty.[1]

Extensions to the System

As cities increase in area, it becomes necessary for public utilities to extend their lines, tracks, or mains into new or outlying territory. The general assumption is that such utilities are obligated to render adequate service within the territory reasonably accessible to their facilities, and that their lines must be extended to furnish this service as the city expands. However, it is generally understood that extensions which do not benefit the city as a whole and which will not produce enough revenue for a long time to meet the cost of the service should ordinarily not be made. In case such extensions are made, their operating expenses will necessarily add to the cost of serving existing customers unless the city government arranges to meet these expenses by other methods.

There are three sources from which the funds necessary for public utility extensions are usually obtained—general taxes, special assessments, and utility revenues. In case the extensions are of a minor nature, they may be financed direct from the current revenues from one or more of these sources. If, however, the work to be undertaken is of a considerable magnitude, bond issues supported by future revenues are generally resorted to. In order to obtain the most favorable terms in the sale of utility bonds, it has been found desirable to pledge the full faith and credit of the city—that is, the general taxing power—to their support and retirement. The best practice, however, looks on this pledge merely as an additional guarantee, and the interest and retirement charges are met out of revenues other than general taxes. Extensions into new territory of systems for distributing

[1] W. G. Raymond, *The Public and Its Utilities*, p. 13.

water are frequently financed—and properly so—by special assessments against the property benefited. Special assessment bonds may or may not be used, depending on the amounts involved. Bonds issued for the enlargement of existing mains, or for the construction of parallel or interlocking distributing systems as safeguards against emergency, may equitably be charged against water revenues, because the benefits are widespread and difficult to measure. To the extent that fire protection, which is furnished by the city without charge, is involved in construction of the type just mentioned, resort to general taxes for the payment of the bonds may be justified.

In financing extensions to public utilities certain more or less arbitrary rules are usually applied. These vary according to the nature of the utility. Municipally owned water plants follow either of two general rules. Under the first rule, extensions may be laid at the points directed by the city council or the head of the water department. In some instances the extensions are made only when the city engineer or the engineering department certifies that they are required. The cost of extensions in some cities is met wholly out of the water revenues, in other cities wholly by special assessments, and in other cities by special assessments for a six-inch main and when the main is larger than six inches from the water revenues for the excess cost. Bond funds are generally used to meet the cost of large mains.

According to the second rule, extensions are only made when the annual revenue from prospective users of water will equal a fixed percentage of the cost of installation, or when the length of the new main per house served does not exceed some established unit, usually 100 feet. The percentage that the annual revenue from an extension must bear to the cost of constructing it varies from 4 to 20 per cent in different cities. Sometimes a higher percentage of annual revenue is required for the con-

struction of mains outside the city limits than for those within.

In making electric line extensions, the various electric companies follow a general rule under which $2 may be spent in building an extension for each dollar of initial annual revenue from such extension. Of course, this amount will vary depending upon local conditions. However, it is considered reasonably conservative under normal operating conditions. In fact, it has been shown that where operating conditions are favorable expenditures for extensions may safely exceed the $2 limit.[1]

Many gas companies have developed a rule for extensions under which 100 feet, or thereabouts, of gas main will be run for each prospective user. Such extensions usually cost about $100 and the average annual revenues from them is about $45. Hence, this rule is quite similar to that for electric line extensions.

There seem to be no general rules, arbitrary or otherwise, applying to the building of track extensions of electric railways. The drift of urban population and the use of buses and automobiles make the transportation business rather uncertain as to revenues. Political influences, threats of competition, and demands of real estate promoters are disturbing elements in working out a satisfactory scheme. It has been found that street railway extensions usually increase land values, in some cases from $50 an acre to $50 a front foot. For this reason special assessments have recently been recognized as a means of financing the construction of rapid transit lines.[2]

[1] See L. R. Nash, *The Economics of Public Utilities*, pp. 379-83. where a formula is developed setting this forth.

[2] See above, page 514, for a discussion of the application of special assessments to rapid transit lines in San Francisco and Detroit. Similar application has also been proposed in New York. The Federal Railways Commission in its report to the President, August, 1920, recommended the use of special assessments in financing extensions to electric railways. See Section XI, page 21, of this report.

What the Utility Should Earn

Having constructed or purchased the utility plant or system, the next important thing to be considered by the city authorities is the revenues of the enterprise. The charges made for the services of any municipally owned utility ought to be sufficient to meet the entire cost of producing the services. In order that such a utility may be self-supporting, it should earn: (1) operating expenses of all kinds, (2) depreciation allowance or reserve, (3) interest on investment, (4) emergency surplus, and (5) taxes. The first three of these items represent direct service costs, as will be explained later. The fourth item, namely, a limited surplus to meet emergencies, is a requirement of careful management, although it is not absolutely necessary. The fifth item—the inclusion of taxes—is unusual. It is the subject of considerable discussion, and for that reason will be referred to later. Three other items should be mentioned in addition to those above. In the event the bonds issued to acquire the utility property are to be retired when due, it is necessary to set aside from the earnings of the utility (6) an allowance for debt retirement or sinking fund purposes. If extensions to the utility system are to be financed from earnings, then (7) a reserve should be set up for extensions. If the city authorities decide, as is sometimes done, to make the utility pay part of the general expenses of the city government, there should be (8) an accumulation over and above the other items, or a profit, which can be drawn upon annually for general budget purposes. It is maintained by some writers that a municipally owned utility should not be made to earn the last three items, that charges in the rates to cover these items are generally unfair to the consumers. If these items are included, the allowances should be moderate; and for that reason bond retirements should not

be based on short periods, like twenty years, which are likely to be overburdensome on the ratepayers.

Operating Expenses

The operating expenses of municipally owned utilities consist mainly of salaries and wages, supplies, and plant maintenance. Such expenses vary widely according to the kind or character of the utility. Ordinarily, they may be divided into three main groups: (1) production expenses, (2) distribution expenses, and (3) general and miscellaneous expenses. These groupings are especially applicable to commodity producing enterprises, such as, water, gas, and electric light and power. Electric railways require a somewhat different grouping of operating expenses, such as that prescribed by the Interstate Commerce Commission.

The operating expenses of water supply systems vary considerably according to the nature of the system. There are two general kinds: gravity and pumping. Sometimes the system is a combination of these two. Purification works are often a part of the system. The gravity system is used by cities located among or near mountains or hills, where the collecting and distributing reservoirs are at a higher elevation than the city. The pumping system is used in supplying water from lakes, rivers or wells, and the water may be distributed either under direct pressure from the pumps or through an equalizing structure, such as a standpipe, an air pressure tank, or an elevated tank or reservoir. The production expense is relatively small for the gravity system and rather large for the pumping system. The latter system requires additional labor and the maintenance of pumps, as well as duplicate pumps and other machinery for emergency purposes. The cost of distribution and the general expenses are usually about the same for both systems.

Gas plants usually produce either coal gas or carburetted water gas. Sometimes they may produce both. Oil gas is often made in the vicinity of oil fields. Coal gas is manufactured through the destructive distillation of bituminous coal. The process produces several valuable by-products, such as coke, tar, and ammonia. The proceeds from the sale of these by-products are usually credited to the operating expenses, thus reducing them by the amounts received from the sales. Water gas is manufactured by passing steam over incandescent coke and enriching the resulting blue gas by the addition of some oil gas. The oil gas is a distillate of petroleum. The water gas process produces fewer by-products than the coal gas. The gas making equipment of the two processes differs considerably, hence the repair and maintenance items of production expenses will vary. More labor is required in making coal gas and higher priced materials in making water gas. The distribution, commercial, general and miscellaneous expenses of the two processes are about the same. There are of course variations in these, depending upon local conditions. The operating expenses of gas enterprises normally require from 60 to 75 per cent of the operating revenues.

Electric energy is generated either by steam power or by water power. The operating expenses vary accordingly. Labor, fuel, supplies, and plant maintenance are generally much less when water power is used than when steam power is used. Of course, many cities do not have convenient water power. Electric energy may be generated at some distance from these cities and transmitted over high voltage lines, in which case there is the expense of operating the transformer station in stepping down the voltage to the point of ordinary distribution. The ratio of operating expenses to operating revenues of some hydroelectric plants is as low as 25 per cent. The ratio of steam plants is between 40 and 50 per cent,

unless the distribution lines extend over a large territory with a widely scattered population, in which case it may run to 60 per cent or even higher. Gas and electric plants are sometimes combined in cities; that is, they are located on the same property, although the plants themselves may be separate. Under these conditions the equitable distribution of operating expenses is a problem which may have to be solved more or less arbitrarily.

Electric railways may produce the electricity which they use or they may buy it from generating plants. In the first case, the operating expenses in connection with the production, transmission and conversion of the electrical energy are practically the same as described above. In the second case, the railways may charge the cost of the electrical energy directly to operating expenses. This may be done even when the city government owns both the railways and the power plants. Electric railways usually show rather high operating ratios. The operating expenses run from 60 to 75 per cent of the operating revenues; sometimes they go much higher. The percentage of revenues absorbed by operating expenses in the case of urban railways has been estimated as follows: maintenance of track and roadway, 7 to 13 per cent; maintenance of equipment, 6 to 11 per cent; power production, transmission, and conversion, 8 to 15 per cent; platform wages (one or two-man operation), 20 to 35 per cent; other transportation and traffic expenses, 5 to 9 per cent; damages, 2 to 6 per cent; and general and undistributed, 7 to 12 per cent.[1] It will be seen that the latter figures completely absorb all revenues.

Depreciation and Renewals

Depreciation may be defined as property loss chargeable to operating expenses because of wear and tear and gradual obsolescence. It is generally understood to ap-

[1] L. R. Nash, *The Economics of Public Utilities*, p. 327.

ply to all physical property with the exception of land. Public utility plants and equipment gradually wear out from use and must be replaced sooner or later in order to keep the property in running order and to maintain the standard of service. Age, inadequacy, and new inventions, which are elements of obsolescence, also increase the property loss of public utility plants and equipment. While these facts are generally conceded, there is a wide difference of opinion among public utility experts and engineers as to just how depreciation should be arrived at when applied to such properties.[1] In fact, these experts and engineers may be divided into two opposing groups, according to their opinions on the subject of depreciation.

One group maintains that a public utility plant begins to wear out from the time it is first put into use and that its continued operation causes a gradual property loss until the end of its service life, at which time it has been consumed to the point where it is worth nothing more than for salvage. Thus, if a machine which has an estimated service life of twenty years has seen ten years of service, it is not any longer as good as new, although it may be giving perfect service, but it has lost half of its service life and therefore its original cost has been considerably reduced, being consumed in the process of operation. If this machine were sold, it would be on the basis of ten years more of useful life rather than twenty years. Some consideration would also be given to the fact that the expense of maintaining it during the last half of its service life is likely to be greater than during the first half. If the owner of this machine does not recognize that the machine is being gradually used up in the process of turning out the service which he sells,

[1] See, for example, John Bauer, *Effective Regulation of Public Utilities*, Chapter VII; Delos F. Wilcox, *Depreciation in Public Utilities;* L. R. Nash, *The Economics of Public Utilities*, Chapter VIII; and Henry E. Riggs, *Depreciation of Public Utility Properties.*

and fails to include this item in the selling price of the service, then his net return will be just so much less than he thinks it is. Even though the machine may require no expenditure of money to keep it running during a given year, it is being used up just the same, and the amount of this diminution of its original cost should be estimated and listed as one of the expenses of producing the service. The accumulation each year of a reserve to cover the estimated property loss of the machine through operation and otherwise is known as *accrued depreciation.*

The other group contends that when a public utility property is well maintained, there is no such thing as accrued depreciation pertaining to or affecting the original cost of it. Such a property is regarded as having an unlimited life; while specific parts of it may wear out or be replaced for other reasons, the property as a whole continues to render service indefinitely. Hence, as long as this service is rendered efficiently, there should be no decrease in the original cost of the property because there is no reduction in the quality of the service. This means that there is no use of setting up a depreciation allowance or reserve in the accounts of the utility in order to insure a complete accounting of all operating expenses annually, but that it is only necessary to record replacement or renewal costs, since the property is fully maintained by the replacement of discarded units as they wear out or become obsolete.

These opposing views relative to depreciation spring largely from the valuation of public utility property in connection with the determination of the rates which are to be charged for service. According to the theory of accrued depreciation, the capital assets of a new utility enterprise grow gradually smaller as its service life lengthens, and consequently the amount of the capital upon which earnings must be computed becomes less and

less. In order to maintain the original capital intact, a depreciation reserve is accumulated equal to the estimated property loss. However, the capital assets of the enterprise do not continue to diminish until they reach the vanishing point at the end of the service life of the first plant units; but after the property has reached maturity, that is, after it has reached a stage at which a large number of its original units have been replaced, and the rate of replacement has become substantially uniform, then accrued depreciation tends to become stable. A mature utility property which is not growing, may be said to have a value of 50 per cent of the cost new.[1] This, of course, gives a low value for rate making purposes, and one that is regarded by the opponents of accrued depreciation as not being a "fair value." However, they do not take into account the fact that the owners of the utility have had restored to them through the depreciation reserve set aside from the operating revenues an amount equivalent to the property loss. This reserve takes the place of new capital; it can be reinvested in the utility or withdrawn at the option of the owners.

If we accept the point of view of those who contend that the cost new of a public utility property is not diminished so long as the enterprise is able to maintain a high quality of service, then it is unnecessary to set up a reserve computed on the basis of accrued depreciation in order to maintain the integrity of the capital investment. All that is required is to make renewals as needed, setting aside from earnings a small replacement reserve for this purpose. These renewals will keep the enterprise operating effectively from the service standpoint; and so long as the enterprise does this, the property will be

[1] Some engineers fix this value at 70, or even 85, per cent of cost new depending upon the nature of the utility. A growing utility property to which additions and betterments are being made should maintain a condition somewhat above that of a non-growing property.

unimpaired, at least, it may be so considered for rate making purposes.

Of course, the actual condition of the property will be the same regardless of whether a depreciation reserve is maintained or renewals are made as needed. A new utility following the renewal method would not have to earn as much as one setting up a depreciation reserve and consequently might establish lower rates when such rates are based on cost of service. But after the two utilities have reached maturity, the demands for replacements in both cases would be about the same. Then the one with the depreciation reserve would be in a position, because of this reserve, to give service equivalent to the other one at lower rates.

There are a number of methods of arriving at accrued depreciation. The one most commonly used is known as the straight line method.[1] It assumes that depreciation bears a direct relation to the estimated service life of the unit or part of the utility plant under consideration. If, for example, a pumping unit of a water system is estimated to have a service life of 20 years, and it cost $100,000 to install, then the depreciation accruing on it under the straight line method would be $5,000 a year. If it is assumed that the unit has a salvage value at the end of its service life of $10,000, then the accrued depre-

[1] Another method, sometimes employed, is called the sinking fund method. This method assumes that the depreciation of a utility unit grows at the same rate as an annuity that is sufficient to equal the cost of the depreciating unit at the end of its service life. If the service life of the unit is 20 years and money earns 5 per cent, then a certain amount placed on compound interest at 5 per cent at the end of each year will equal the cost of the unit in 20 years. It is an operation analogous to the development of a sinking fund for debt retirement. The main advantage claimed for the sinking fund method over the straight line method in accruing depreciation is that the contributions to the reserve during the early years of the service life of the property are very much smaller than they are under the straight line method, and therefore more in line with the actual physical changes in the property. However, the sinking fund method is much more complicated than the other method and the results obtained from it do not appear to justify its use. The straight line method seems to represent the facts with sufficient accuracy, since, at best, depreciation estimates involve considerable uncertainty.

ciation would be $4,500 a year, or the cost new less the estimated salvage value divided by the number of years of assumed service life. In applying the straight line method to a utility system, the service life of each of the various units should be taken into consideration in arriving at the composite life of the property. This is not generally a simple computation owing to the varying lengths of the service life of the units that make up the system. For example, the storage dams and reservoirs of a water system are usually estimated as having a useful life of 80 to 100 years; the distributing reservoirs and standpipes from 40 to 50 years; the buildings from 20 to 50 years, depending on the kind of structure; the filter plants from 35 to 40 years; the pumping machinery from 15 to 40 years, depending on the kind of units; valves and hydrants from 40 to 50 years; distribution pipe from 15 to 100 years, depending on the size and material of the pipe; and water meters from 20 to 30 years. It is obvious from these figures that a mature water utility property will have some units that are practically new, others that are partly consumed, and still others that are nearly ready for replacement; hence some of the complications which are involved in arriving at the accrued depreciation.

Depreciation Reserve and Debt Retirement

Depreciation has been discussed in the preceding section without regard to whether the utility is privately owned or municipally owned. There are, however, some important distinctions in these two types of ownership growing out of the handling of the depreciation reserve and its relation to the retirement of the bonds issued to acquire the utility. The privately owned utility does not ordinarily retire its stocks and bonds but carries them indefinitely. All it does is to pay the interest on its bonds and try to produce a sufficient profit from which to de-

clare dividends on its outstanding stocks. In the event it sets up a depreciation reserve, this reserve is used for property renewals, extensions, and betterments. It may even cut down the contribution to the depreciation reserve for a given year in order to maintain the payment of dividends on its stocks. In fact, this is one of the reasons why a privately owned utility often prefers the replacement method, permitting a small replacement reserve to which it may contribute in unequal amounts depending upon the prosperity of its business. In the years when business is good it may make a considerable contribution to this reserve and in lean years little or none.

In the case of the municipally owned utility, the city authorities are usually required to pay off the bonds that have been issued to acquire the property. These bonds generally fall due either during or at the end of a fixed period, depending upon whether they are serial bonds or term bonds retired from sinking funds. If a depreciation reserve is set up during the period the bonds are being retired, then the customers of this period are not only paying for the plant, but they are setting up a reserve to renew the plant for future customers. This means that the early customers, because of this double burden, will pay higher rates for service than later customers will be called upon to pay. In some cities this practice is followed at the present time. Of course, it is usually a matter for the city authorities to determine. If they think that the customers of the utility can bear the extra charge in the service rates, they may adopt the plan of paying for the utility property and setting up a depreciation reserve at the same time. However, if they want to arrange it so the customers of one period will pay only the cost of that period, they should use the replacement method in the event they provide for the payment of the bonds. In this case no depreciation

reserve would be set up. If such a reserve is set up, there should be no charge in the service rates for the payment of the bonds. The customers would then pay the cost of the service, including interest and depreciation, and when the bonds came due they would be refunded. This latter plan follows substantially that of privately owned utilities. It is, perhaps, somewhat more practical to set up a depreciation reserve for municipally owned utilities. The debt for the acquisition of the utility property may, however, be paid out of the general tax levy of the city, since payments on debt are not regarded as costs of service but rather as capital investments.

The depreciation reserve of a municipally owned utility, if the property is new, will sometimes amount to twice as much as is required for renewal purposes when the straight line method is followed in making the accruals. This is largely because of the fact that with a new property a considerable reserve is accumulated before there is any need to spend it for renewals; with matured property the reserve and the renewal needs will be about equal. If the reserve is larger than the renewal needs of the property may require, then the surplus may be used to pay for extensions or betterments to the property or it may be used to retire outstanding indebtedness of the property. This has been done in the case of some municipally owned utilities. There seems to be no great objection to this policy so long as the utility property is maintained in first-class condition by proper and timely renewals. If the reserve should become depleted to the point where such renewals could not be made, then it should be replenished immediately by the funding of the capital expenditures already made from it.

Taxing Public Utility Property

Some writers regard a municipally owned utility as a commercial enterprise. They view it as serving only its

customers. While it may confer some common benefit, there is not the same reason for letting it go untaxed that there is for not taxing unproductive public property within the city. They maintain, therefore, that public utility property, whether municipally or privately owned, should be assessed and pay taxes as in the case of other property, and should collect these taxes in turn as a cost of service from the customers.

Other writers hold that practically everyone in a city enjoys the benefits of its utilities, just as in the case of streets and sewers, and perhaps more so than in the case of schools. The latter property, of course, is unproductive; but it could be made self-sustaining, if the policy of the city authorities were to make it so. These writers see no valid reason for adding taxes to the charges of public utilities, except as a convenient method of collecting city revenues. If citizens did not pay the taxes in this form, they would have to pay them in some other form.

Up to the present time, publicly owned utilities have been generally exempted from the payment of taxes on their property or business within the limits of the owning municipality. However, the present tendency seems to be in the direction of taxing such utilities. In fact, the property of municipally owned water systems outside the city limits is usually taxed by the county and state, as in the case of privately owned property. The municipally owned street railway of Detroit is required to pay taxes not only to the county and state, but also to the city. The taxes are levied against the property on the same basis as on other property within the city. A monthly charge against income is made to provide a reserve for payment of these taxes.

Charges for Utility Services

When the city government acquires a new utility enterprise the amount that it should earn and hence the charge

for its service will have to be estimated largely upon the basis of the experience of similar utilities in other cities. If the enterprise is established and going, the amount to be earned will be known and the problem will be one of devising a system of rates which will produce the necessary revenues and which will be fair to all the customers and taxpayers. Such a system of rates requires that the charge for service to each customer should bear a close relation to the actual cost of the service. Of course, city authorities may, and do, find it necessary to vary somewhat from this. They sometimes average the costs of a utility service for domestic purposes and produce a rate which favors the customer that uses a small quantity over the customer that uses a large quantity. They may also require the utility to earn more than the actual cost of the service in order to turn some money into the general fund of the city government.

Factors in Rate Making

There are three more or less distinct factors which enter into rate making for public utilities. These are (1) customer costs, (2) customer demand or readiness-to-serve costs, and (3) quantity of service or consumption costs. Customer costs cover the reading of meters and billing charges, and are practically the same for each customer regardless of the amount of service he uses. If the meter and the service line from the main to the house belong to the utility rather than the customer, there will be a charge for maintenance, depreciation, interest, and so forth, which will be about the same for all customers with the same sized connections and meters. This charge is considered customer cost.

Customer demand or readiness-to-serve costs are not so easy to distinguish as customer costs. Readiness-to-serve costs vary with the kind of utility. Some utilities furnish a commodity from storage; others furnish a com-

modity or simply a service without storage. The latter must be ready with sufficient plant and labor to furnish the commodity or service in any quantity and at whatever time desired by any customer. Storage water supply and gas works belong to the former group, while water supply by direct pumping, electric power, and street railways belong to the latter group. Utilities which use the storage method do not have to build plants to take care of the maximum or peak consumption, but only average plants operating in a regular manner are required. Utilities without storage must design their plants to meet the maximum or peak demands, consequently part of such plants will be idle some of the time and the cost of operation will be greater than for steady going plants. This gives rise to certain factors, namely, the load factor, or the relation between the average load and the peak load; the demand factor, or the relation between the potential and actual maximum demand; and the diversity factor, or the relation between the total maximum demands of individual customers for a given period and the maximum station load resulting from such service at any time during the same period.

Certain costs, which are fairly constant, result from these factors. Such costs are generally divided among the various customers, regardless of the quantity of service used.

The quantity of service or consumption costs are covered by a charge for the actual amount of service consumed by the customer. The amount or quantity of service can be determined exactly when meters are used; otherwise, it can be known only approximately. The difficulty in charging for the quantity of service does not arise from being unable to ascertain the amount consumed, but from separating the costs which are due directly to the quantity of service from those that are not due to it. For this reason, it is sometimes hard to

adjust the consumption charge so that it will not be unfair to different classes of customers.

Another thing that should be considered in arriving at the consumption charge for private customers is the amount of service used by the city government. The electricity used to light the streets and public buildings is properly chargeable against the community. The same may be said of water furnished to public buildings, for street cleaning, sewer flushing, and fires; and also of gas used for street lighting.

There are several forms of rates applicable to public utility services, but the fairest form for the part of the cost collected from the individual customers is generally conceded to be the three-part rate for service. Such a rate consists of a fixed customer charge, which is the same for all customers of a given class; a fixed demand or readiness-to-serve charge, which is not the same for all customers, but is practically the same from period to period for any given customer; and a variable charge based on the quantity of service consumed. For the sake of simplicity, it is probably better to make a two-part rate by combining the customer charge and the readiness-to-serve charge into one fixed *service charge.* This is generally done in the case of water supply, and to some extent in other utilities.

Forms of Rates

An old form of rate, called the flat premises rate, is still used to charge for water supply service in some cities. It is a fixed sum, depending upon the size of the property or the nature of the improvements. It may be computed to include a part of the cost of the service lines extending to the property.

A later form of rate is the fixture rate. It applied to water, gas, and electric service, prior to the use of meters. A certain amount was charged for each tap,

burner, or outlet. This rate still prevails as a water rate in those cities that do not meter their water supply. It seems to be the best form of rate to use where meters have not been adopted as a means of measurement. However, it is conducive to wastefulness in the use of the service almost as much as the old premises rate.

Where meters are used in selling water, gas, or electricity, three forms of rates may be employed. These are (1) the straight line rate, (2) the step rate, and (3) the block rate. The straight line rate fixes so much per thousand gallons, per thousand cubic feet, or per kilowatt, regardless of the amount used. This form of rate, without some adjustments, is not equitable as between the small user and the large user, since it costs less per unit of service to serve the latter than it does the former through the same sized service and meter. The step rate attempts to overcome this inequity by making the charge per unit of service less for the large user than for the small user. The objection to this form of rate is that when the quantity of service consumed approaches a step-down in the rate, it is to the advantage of the user to consume or waste enough in addition to carry him beyond the step-down in order to get the lower rate. This objection has caused the step rate to be replaced generally by the block rate. The latter rate is similar to the straight line rate, except that when the quantity of service consumed passes a block the rate is lowered a certain amount on each unit. For example, the rate for water might be 30 cents per 1,000 gallons for the first 5,000 gallons used in a month; 20 cents per 1,000 gallons for the next 5,000 gallons; and 10 cents per 1,000 gallons for all over 10,000 gallons used in one month. The block rate is not inequitable to the large user and it does not encourage waste.

The form of rate based upon metered service consists of a constant charge, that is, the service charge, and

either a straight line meter rate or a block rate for the quantity or consumption charge. If the service charge is merely a customer charge, then a block rate for the consumption charge is better than a straight line rate since it permits a more equitable distribution of the overhead costs and fixed charges. If the service charge includes both the customer charge and the readiness-to-serve charge, a straight line rate for the consumption charge is probably better than a block rate, since practically all that is left for inclusion in the consumption charge is the cost which is directly proportional to the quantity used. Some utilities, especially water supply, make a minimum rate for a billing period which is an amount that is collected regardless of the quantity of service used by the customer. This minimum rate is designed to take the place of the service charge, but it is less equitable.

Water Rates

Many municipalities, which own their water systems, furnish public water service free. This is generally regarded as being unfair to the private customers, since it puts an expense on them that should be borne by the whole community. This "free water" should be charged to the city departments using it and an appropriation should be made in each instance to meet the cost of it.[1]

[1] It is argued by some that the cost of "free water" is insignificant in comparison with the unavoidable waste from leakage and seepage in the water system and through meter slippage (water passing through the meters without registering). In Rochester, New York, where in 1921 the local Bureau of Municipal Research made a careful study of the water system, it was found in a daily consumption of 27,000,000 gallons that about 1,420,000 gallons were lost through seepage and leakage in the system, 5,000,000 gallons through non-registration of meters, and 5,090,000 gallons through other and unaccounted ways. The amount of water used by the city was about 1,900,000 gallons, 600,000 gallons of which was metered and the balance unmetered. The water actually metered for commercial and domestic purposes was 13,600,000 gallons per day, or slightly more than half of the water delivered.

In Detroit, Michigan, only about 72 per cent of the water produced is paid for. The balance is accounted for by leaks in the mains and service connections, meter slippage, and water used by the municipality. It is estimated that meter slippage alone averages about 5 per cent of the total

In the case of water for fire protection, the cost of the water may be apportioned directly to fire districts receiving the protection rather than placed upon the city as a whole. However, this is a matter of policy for the city authorities to settle.

In arriving at the water rate for private customers, the cost of water for the various purposes noted above should be taken into consideration. The customer's rate should consist of the service charge—customer cost plus readiness-to-serve cost—and the consumption charge. The service charge should not be loaded with the cost of "free water."

The cost of fire protection service in cities of from 50,000 to 100,000 population is approximately $2 per capita. It may be as low as $1.25 per capita in large cities and as high as $3 in small cities and towns. The usual method of charging for this service is through a so-called hydrant rental. The city pays an annual charge of so much for each hydrant. The common charge is about $45 per hydrant; however, this charge varies greatly from city to city. At best it is an arbitrary rate. Of course it is possible to determine the charge per hydrant for any one year based on the percentage of the cost of the water system applicable against fire protection.[1] Then this charge would have to be revised each year as new hydrants are placed in service. But it does not seem to be a desirable method, since it tends to reduce the number of hydrants installed to the detriment of the service.

A second method of meeting the cost of fire protection

water distributed through the system. See pages 22 and 27 of *Metered Water Rates for Detroit*, by George H. Fenkell, general manager, department of water supply, issued January 29, 1923.

[1] The cost of the portion of the water system used for fire protection generally constitutes from 60 to 80 per cent of the entire cost of the system in cities having less than 10,000 population; 30 to 40 per cent in cities having about 50,000 population; 20 to 30 per cent in cities of about 100,000 population, and 10 to 20 per cent in large cities. See *Water Works Practice*, Manual of American Water Works Association (1925), pp. 593 ff.

service is a charge per mile-of-pipe (6 inches or larger in diameter, sometimes 4 inches or larger in diameter), with an allowance per hydrant for maintenance. By this method the annual charge increases with the increase in pipe laid and with the number of hydrants. Hence it is regarded as being a better basis of charge than the hydrant rental.

A third method is a charge per inch-foot of pipe distribution system, with an allowance per hydrant for maintenance. By this method an annual charge is made in cents, or in fractions of a cent, per inch-foot of pipe and a charge per hydrant for maintenance. It is generally considered the most equitable of the three methods and it is easy of application. It has an advantage over the second method in that it gives weight to the relative size of the pipe used.

Charges for private fire protection service require some mention. Such service includes the installation of special connections with the water supply distribution system to provide for sprinkling systems in buildings and manufacturing plants, and it may include the laying of special fire mains connected with private fire hydrants together with check valves or other control devices. Connections of this kind, designed for the accommodation of private concerns or individuals, should be made the matter of a special charge. The cost of the service varies with the local conditions, hence the rates must be worked out in each case.

Gas Rates

Gas rates do not need to be complicated because the production cost of gas is not subject to wide fluctuations. Gas does not have to be produced at the moment it is sold as in the case of electric energy. It may be manufactured at a uniform rate and stored in holders to take care of fluctuating consumption.

There is, however, considerable discussion over the proper form of gas rates. This is largely on account of the claim made by gas men that one-third of the customers are served at a loss; that one-third produce no profit; and that one-third pay their own cost, part of the cost of serving the first third, and the profit for the other two-thirds. Recently, the position has been taken by those who know the gas industry that the best form of rate is the service charge—customer and readiness-to-serve charge—plus a straight line meter rate. This form of rate has been objected to on the ground that it charges the small consumer a higher rate per unit than it does the large consumer, even making a charge when no gas at all is used. However, it would seem to be fairly equitable when the service charge contains all the operating costs and current charges of the gas enterprise that are wholly independent of the quantity of gas produced and this charge is properly distributed among the customers.[1]

Electric Light and Power Rates

As we have already indicated, the making of rates for electric light and power is somewhat more complicated than the fixing of either water or gas rates. This arises from the number of variable factors involved. Besides the factors of load, demand, and diversity, which have already been noted, there are other factors, such as the seasonal or off-peak factor, the low power factor, and the factor of varying fuel costs. Customers who take current at off-peak hours or at seasons of the year when the load is light should get somewhat better rates. The low power factor is due to the magnetizing of induction motors and other devices on alternating current circuits,

[1] A method of arriving at a fair distribution of manufacturing costs and other charges in fixing gas rates is fully discussed in Chapter XIII of W. G. Raymond's *The Public and Its Utilities.*

which consumes a certain amount of current whether the load is light or heavy. Recently the wide fluctuations in the price of coal, which constitutes a large part of the cost of electric energy when produced by steam, have made it necessary to adjust the rates to take care of this element.[1]

In attempting to devise a rate form for the use of electric energy, several things should be kept in mind. The rate form should be such as to encourage off-peak customers, and not to discourage any profitable class of customers. For domestic and ordinary use, the rate form should be as simple as possible; but for power users, the rate form may be more complex. The rates must not differ among customers of the same class in such a manner as to be discriminatory; otherwise, it is probable that such rates may be set aside by the courts as being illegal.

In fixing the rates for domestic and ordinary use of electric energy, some consideration should be given to street lighting and the sale of power for industrial use. The cost of electricity for street lighting is ordinarily charged to the city as a whole and paid from taxes. The amount charged for this purpose varies greatly; in some cities it is much more than the cost, in others much less. While street lighting is a peak hour service, it is also a long hour service, especially in those cities that have all night lighting. It may average as high as 4,000 hours a year. Where the generating plant and other equipment for street lighting purposes are separate from the plant and equipment for domestic and commercial purposes, it is an easy matter to determine the cost of street lighting. But cities do not usually maintain separate systems, hence some allocation of the total cost to that for street lighting must be made. In this case, the charges for

[1] These factors are discussed at some length in L. R. Nash's *The Economics of Public Utilities*, pp. 243-58.

street lighting may be in proportion to peak hour demand, or peak hour demand plus an arbitrary division of overhead and maintenance costs. Such charges may also be apportioned on the basis of the pole space of the different lines.

The charges for electric power are generally fixed at what the traffic will bear. However, off-peak or long hour users are ordinarily encouraged, and in many cases they are given rates which will only a little more than pay the output costs. A common form of power rate is the demand rate. This rate sets up two forms of charges; the demand charge, covering such costs as are independent of use, and the energy charge, covering costs that vary directly with use. The demand charge is paid regardless of the amount of energy used. This assumes, of course, that certain facilities are always at the command of the customer, whether he uses them or not, and cannot be assigned to any other customer. Hence, no hardship is involved in the uniform and regular payment of the demand charge. The energy charge is self-explanatory.

In fixing the rates for domestic or retail use, the total costs of generating electrical energy minus the receipts estimated from street lighting and sale of power may be divided among the customers. This, of course, assumes that all are peak load customers. Most of the existing rates for retail purposes are of the block form, the flat or straight line form having largely gone out of use. The simplest form is the two-block rate, which includes in the first block a small service charge covering only customer costs. Under such a rate some customers are likely to pay more than cost and others less, but the simplicity of the rate seems to offset this inequity. Another form is the block rate with a minimum bill. However, this form is usually inequitable, as it is in the case of water and gas.

Electric Railway Fares

There are three common forms of rates for street railway service. One is a straight or flat rate, varying from 5 to 10 cents a ride for any distance, with or without transfers from one line to another. Another form is the straight or flat rate plus a charge of one or more cents for a transfer. The third is the zone form, according to which a flat rate is charged for each ride within a circumscribed district or zone, and an additional rate of the same amount or a somewhat less amount is charged each time a zone line is crossed.

The straight or flat rate is the one most commonly used. Besides being quite simple, it is believed to have some influence in preventing congestion of population in the larger cities. However, this influence seems to be of doubtful effect in such cities as New York. The flat rate with an additional charge for transfer does not seem to be very popular.

A few cities have adopted the zone form of rate, which is in more or less general use in European cities. Our experience with it so far has not been on the whole encouraging. It tends to decrease the number of passengers and to increase the average length of haul, thus adding to the cost per passenger and requiring further increase in fare.

Several special rates for cash fares and for tickets have been devised. Some cities use the weekly pass system which entitles the holder to an unlimited number of rides for a fixed weekly payment. The nickel permit system is used in a few cities with high cash fares, the holder paying about $1 each month for the permit which accords him the privilege of riding for 5 cents. The cost of the permit is in the nature of a service charge to the passenger. Tickets are frequently sold in half dozen lots at less than cash fares.

SELECTED BIBLIOGRAPHY

CHAPTER I. THE SIGNIFICANCE OF MUNICIPAL FINANCE.

KING, CLYDE L. (Editor), "Competency and Economy in Public Expenditures," *The Annals* (American Academy of Political and Social Science), May, 1924.
Several articles in this issue bear upon the subjects treated in this volume. See pages 15, 31, 69, 147, 195, 206, 269, and 272.

LUTZ, HARLEY L., *Public Finance.* New York: Appleton, 1924.
Part I relates particularly to the subject matter of this chapter. This is one of the best books published on the general field of American governmental finance; everyone interested in the subject should read it.

CHAPTER II. ORGANIZATION OF FINANCIAL ADMINISTRATION.

CAPES, W. P., *The Modern City and Its Government.* New York: Dutton, 1922.
Chapter XII, Control and Management of City School Systems. Presents the point of view of municipal officials.

Model City Charter. New York: National Municipal League, 1926.
Sections on financial organization and procedure.

PITTENGER, B. F., *An Introduction to Public School Finance.* Boston: Houghton Mifflin, 1925.
Chapter VII, The Control of School Finances. Presents the viewpoint of school men.

Report of the Special Joint Committee on Taxation and Retrenchment of New York State, Legislative Document No. 80, 1920.
Chapters I, II, and III in this connection. Other chapters relate to subsequent discussions in this volume.

CHAPTER III. THE BUDGET AND BUDGET MAKING.

BUCK, A. E., *Budget Making.* New York: Appleton, 1921. Also *Municipal Budgets and Budget Making.* New York: National Municipal League, 1925.

LAMBIE, MORRIS B., *The Municipal Budget.* Minneapolis: League of Minnesota Municipalities (Publication No. 1), 1923.

Lewis, Nelson P., *The Planning of the Modern City.* New York: John Wiley & Sons, 1923.
Chapter XIX, Financing a City Plan.
Taylor, R. Emmett, *Municipal Budget Making.* Chicago: University of Chicago Press, 1925.

CHAPTER IV. BUDGETARY AND AUDITING CONTROL.

Eggleston, DeWitt C., *Municipal Accounting.* New York: Ronald, 1914.
Chapters VIII and IX, *passim.* (See below under next chapter references.)
Metz Fund *Handbook of Municipal Accounting.* (Prepared by the New York Bureau of Municipal Research.) New York: Appleton, 1914.
Chapters VII, VIII, and X, *passim.* (See below under next chapter references.)

CHAPTER V. GENERAL ACCOUNTING AND REPORTING.

Cleveland, Frederick A., *Chapters on Municipal Administration and Accounting.* New York: Longmans, Green, 1915.
Chapters VIII to XIII inclusive, on forms and methods of municipal accounting. Presents a rather philosophical treatment of the subject.
Eggleston, DeWitt C., *Municipal Accounting.* New York: Ronald, 1914.
Contains a detailed explanation of accounts, procedure and forms based largely upon the experience of New York City.
Metz Fund *Handbook of Municipal Accounting.* New York: Appleton, 1914.
Prepared by the New York Bureau of Municipal Research and represents the earlier work of the Bureau in this field, the point of view having changed since then especially in the case of the capital balance sheet.
Oakey, Francis, *Principles of Government Accounting and Reporting.* New York: Appleton, 1921.
Treats exhaustively the subject of general financial reporting, but does not attempt to cover auditing, recording and cost keeping.

CHAPTER VI. COST ACCOUNTING.

Lawrence, W. B., *Cost Accounting.* New York: Prentice-Hall, 1925.
Deals with the theories upon which the procedure of cost accounting is based and presents practical applications of these theories

to present-day manufacturing conditions. Valuable because of the analogy between commercial and governmental cost accounting.

NICHOLSON, J. L., and ROHRBACH, J. F. D., *Cost Accounting.* New York: Ronald, 1919.

Commercial cost accounting treatise. Chapters I to XXIV, inclusive, are suggestive of the method of applying cost accounting to city governments.

CHAPTER VII. GRAPHIC STATISTICS IN MUNICIPAL FINANCE.

JEROME, HARRY, *Statistical Method.* New York: Harper, 1924.

A presentation of statistics, with the newer developments in statistical methods, which is not complicated by long mathematical explanations.

KARSTEN, KARL G., *Charts and Graphs.* New York: Prentice-Hall, 1923.

A very comprehensive presentation of graphic methods in the analysis of statistics.

RIGGLEMAN, JOHN R., *Graphic Methods for Presenting Business Statistics.* New York: McGraw-Hill, 1926.

A clear and simple statement of the essentials of graphic presentation.

SECRIST, HORACE, *An Introduction to Statistical Methods.* (Revised edition.) New York: Macmillan, 1925.

A standard work rewritten to include the latest material on the subject.

SMITH, W. H., *Graphic Statistics in Management.* New York: McGraw-Hill, 1924.

A simple presentation of statistical practice and graphic usage.

YOUNG, B. F., *Statistics as Applied in Business.* New York: Ronald Press, 1925.

A non-mathematical treatment of statistical and graphic methods as applied to the facts of business.

CHAPTER VIII. EMPLOYMENT AND PENSIONS.

BEYER, WILLIAM C., "Employment Standardization in the Public Service," *National Municipal Review* supplement, June, 1920.

Conference Committee Report, "The Personnel Problem in the Public Service," *Public Personnel Studies,* January, 1926.

MERIAM, LEWIS, *Principles Governing the Retirement of Public Employees.* New York: Appleton, 1918.

Presents the essentials of a sound pension system for public employees.

PROCTOR, ARTHUR W., *Principles of Public Personnel Administration.* New York: Appleton, 1921.
A discussion of the problems of public employment.
STUDENSKY, PAUL, "Pensions in Public Employment," *National Municipal Review* supplement, April, 1922.

CHAPTER IX. PURCHASING.

DINSMORE, JOHN C., *Purchasing.* New York: Prentice-Hall, 1922.
Presents the various aspects of commercial purchasing. Chapters III, VI, VII, VIII, XIII, and XXVIII are of interest from the governmental standpoint.
HYSELL, HELEN, *The Science of Purchasing.* New York: Appleton, 1922.
A treatment of salesmanship and the technique of buying.
THOMAS, A. G., *Principles of Government Purchasing.* New York: Appleton, 1919.
Discusses the organization, methods and procedure of governmental purchasing.
TWYFORD, H. B., *Storing.* New York: Van Nostrand, 1918.
Covers the general problems of storage with special reference to commercial concerns.

CHAPTER X. TREASURY MANAGEMENT.

FAUST, MARTIN L., *The Custody of State Funds.* New York: National Institute of Public Administration, 1925.
A discussion of the custody and management of state funds, the methods and procedure of which are applicable to the handling of city funds.
LUTZ, HARLEY L., *Public Finance.* New York: Appleton, 1924.
Chapter XXX, Some Aspects of Treasury Organization and Management.

CHAPTER XI. ASSESSMENT OF PROPERTY FOR TAXATION.

BABCOCK, FREDERICK M., *The Appraisal of Real Estate.* New York: Macmillan, 1924.
The most comprehensive treatment of real estate valuations from the standpoint of the commercial appraiser. Chapter X, Depreciation and Obsolescence, and Chapter XII, Comparative Value Analysis, are of special interest to assessors.
EVERS, CECIL C., *The Commercial Problem in Buildings.* New York: Record and Guide, 1914.

A valuable aid to an assessor confronted by the problem of placing a valuation on all types of buildings.

HURD, R. M., *Principles of City Land Values.* New York: Record and Guide, 1924.
The pioneer attempt to apply economic principles to the problems of the land appraiser.

KING, W. I., *The Valuation of Urban Realty for Purposes of Taxation.* Madison: University of Wisconsin Bulletin, 1914.
An interesting attempt to establish scientific bases for depth curves and corner rules.

POLLOCK, WALTER W., and SCHOLZ, KARL W. H., *The Science and Practice of Urban Land Valuation.* Philadelphia: Manufacturers Appraisal Company, 1926.
The first detailed presentation of the Somers rules for land valuation.

PURDY, LAWSON, "The Assessment of Real Estate," National Municipal League pamphlet, 1923.
This is an excellent brief treatment of the subject.

ZANGERLE, JOHN A., *Principles of Real Estate Appraising.* Cleveland: Stanley McMichael, 1924.
The best comprehensive treatment of the subject.

CHAPTER XII. SPECIAL ASSESSMENTS.

Committee on Sources of Revenue, "Special Assessments," National Municipal League pamphlet, 1923.

ORMOND, WILLIAM C., "Assessments for Local Improvements," Municipal Engineers of the City of New York, Paper No. 89, 1914.

ROSEWATER, VICTOR, *Special Assessments.* New York: Columbia University studies, Vol. II, No. 3, 1898.
The best available study of the history of special assessments.

SWAN, HERBERT S., "The Assessment of Benefits and Damages in Street Proceedings," American City pamphlets, No. 151, 1916.

CHAPTER XIII. MISCELLANEOUS CITY REVENUES.

U. S. Bureau of the Census, *Financial Statistics of Cities,* 1909-1923.

CUSHMAN, R. E., *Excess Condemnation.* New York: Appleton, 1917.
An exhaustive treatment of excess condemnation from the standpoint of the American city.

JENSEN, JENS P., *Public Finance.* New York: Crowell, 1924.
Part II, Public Revenues.

LUTZ, HARLEY L., *Public Finance.* New York: Appleton, 1924.
Part III, Public Revenues Except Taxation.

Report of the Commission on New Sources of City Revenue, City of New York, January 11, 1913.

CHAPTER XIV. DEBT ADMINISTRATION.

BROWN, FRASER, *Municipal Bonds.* New York: Prentice-Hall, 1922.
A statement of the law and customs governing the issuance of municipal bonds with some illustrations of practice.

HEWES, LAURENCE I., *Highway Bonds.* (United States Department of Agriculture, Bulletin No. 136.) Washington: Government Printing Office, 1917.
Part II, Highway Bond Calculations. Contains the theory of interest applied to bond calculations, with sinking fund, annuity, and interest tables for 60 intervals and 14 rates of interest. Valuable in the computation of municipal sinking funds.

LUTZ, HARLEY L., *Public Finance.* New York: Appleton, 1924.
Part V, Public Credit.

RAYMOND, WILLIAM L., *State and Municipal Bonds.* Boston: Financial Publishing Company, 1923.
Chapter III, Municipal Bonds.

CHAPTER XV. FINANCING MUNICIPALLY OWNED UTILITIES.

BAUER, JOHN, *Effective Regulation of Public Utilities.* New York: Macmillan, 1925.
Chapter VII, Depreciation; Chapter XI, Rate Schedules.

NASH, L. R., *The Economics of Public Utilities.* New York: McGraw-Hill, 1925.
Chapter V, Accounting Methods; Chapter VIII, Depreciation; Chapter X, Rate Structures; Chapter XIV, Public Ownership.

RAYMOND, WILLIAM G., *The Public and Its Utilities.* New York: John Wiley & Sons, 1925.
Chapters II to XVI inclusive, covering operating expenses, depreciation, taxes, and rates.

RIGGS, HENRY E., *Depreciation of Public Utility Properties.* New York: McGraw-Hill, 1922.
Discusses the maintenance of utility property by the replacement method.

Water Works Practice. (A manual issued by the American Water Works Association.) Baltimore: Williams & Wilkins, 1925.
Chapters XX, XXII, XXIII, and XXVI, covering the financing of water works and charges for water and for fire protection.

WILCOX, DELOS F., *Depreciation in Public Utilities.* New York: National Municipal League, 1925.
Presents the theory and practice of accrued depreciation.

INDEX

Abatement of taxes, 125.
Accounting records, cost, 211 ff.
  general, 183 ff.
  officers keeping, 192, 217.
Accrual basis of reporting, 163.
Accruals, auditing procedure on, 118 ff.
  meter readings, 119.
  revenues and receipts, 117 ff.
Accrued depreciation in utilities, 527.
  methods of arriving at, 529.
Additional appropriations, 102.
Advancement and promotion of employees, 255 ff.
Advice of employment, 136.
  of goods received, 130.
  of services performed, 130.
Agnew, P. G., cited, 276 n.
Alabama, special assessment decision, 404.
Alley lots, valuation of, 364 ff.
Allotments, 106 ff.
American Water Works Association, manual of, cited, 539 n.
Amortization, 156, 506 ff.
Analyses and units, cost accounting, 194 ff.
Anderson, Philo H., cited, 418 n.
Annulment of taxes, 297.
Appeals from assessments for taxes, 379 ff.
Apportionment of special assessments, 392 ff., 405 ff., 418 ff.
Appropriation accounts, 127.
Appropriation balances, detailed statement of, 172.
Appropriation ledger, 190.
Appropriations, 44 ff .
  additional or supplementary, 102 ff.
  allotments of, 106.
  continuing, 48.
  indefinite, 48.
  lump-sum, 44, 105.
  not under the budget, 103.
  revenue, 48.
  segregated, 44.
  single bill for, 46.
  transfers of, 109.
  undesirable kinds, 47 ff.
  unencumbered balances, 110.
Area diagrams, 238 ff.
Arnett, Trevor, cited, 502 n.
Assessment of automobiles, 342, 374.
  of bonds and mortgages, 314 ff.
  of buildings, 312 ff., 369 ff.
  of corner lots, 356 ff.
  of general property, 311.
  of household effects, 312, 314, 374.
  of land, 343 ff.
  of motor vehicles, 342, 374.
  of property for taxation, 306 ff.
  of real estate, 313 ff.
  procedure, 316 ff.
  standards of, 310.
Assessments, appeals from, 379 ff.
  benefit, 385 ff., 388, 390 ff., 398 ff., 403 ff., 405 ff.
  building records for, 337 ff.
  collection of special, 434 ff.
  compilation of, 319.
  confirmation of special, 434 ff
  cost, 390 ff.
  equable, 318.
  equalization of, 379.
  full value, 307 ff.
  gathering information on, 317 ff.
  inequalities in, 307 ff.
  personal property, 341 ff., 374.
  procedure in special, 426 ff., 438 ff.
  recording information on, 318 ff.
  records of, 318 ff., 327 ff.
  rules for valuation of, 348 ff.
  sources of information on, 321 ff.
  special, 384 ff.
  types of special, 385 ff.
  unit valuation of, 343 ff.
Assessor, 19.
  office organization of, 375 ff.
  sources of information for, 321 ff.
Assets and liabilities, 154, 167.
  current, 168.
  detailed statements of, 169 ff.
Atlases, real estate and insurance, 326.
Audit, facts to be established in an, 112 ff.
Auditing control, 110 ff.
  current, 110 ff.
  facts to be established by, 112 ff.
  over abatement of taxes, 125.

Auditing control
over bond sales, 125.
over expenditures, 126 ff.
over payrolls, 136 ff.
over revenues and other receipts, 116 ff.
periodic, 110, 141.
Automobiles, assessment of, 342, 374.
Averages, statistical, 221 ff.

Baker, Ore., depth curve used in special assessments, 417 ff., 421.
Balance sheet, consolidated fund, 147 ff.
current, 167 ff.
for municipally owned utility, 178 ff.
Baltimore, Md., Bernard rule for corner valuation, 360 ff.
board of estimate, 11.
Bank ledger, 190.
Bar charts, 228 ff.
Bauer, John, cited, 510 n., 526 n.
Beard, C. A., quoted, 45.
Benefit allowances for pensions, 262 ff.
Benefit assessments, 385 ff., 388, 390 ff., 398.
benefits defined, 403 ff.
distribution of, 416.
district boundaries, 413 ff.
local, district, and general, 406 ff.
methods of apportioning, 405 ff.
Berkeley, Calif., budgetary control system, 107 n.
Bernard, A. D., rule for corner valuation, 360 ff., 423.
Bids, proposals for, 277.
soliciting and receiving, 279 ff.
Billing, 121 ff.
controlled stationery for, 123.
numbered forms for, 120, 123.
systems of, 121.
Block and lot maps, 329 ff.
preparation of, 335 ff.
systems for numbering, 333 ff.
Bluefield, W. Va., five year improvement program, 53.
Boards of estimate, 11.
Bond issues, consolidation of, 489 ff.
Bond ledger, 190, 503.
Bonds, authorization of, 490 ff.
callable term, 483, 489.
comparative costs of types of, 485 ff.
deferred serial, 484.
discount on, 492 ff.
irregular serial, 484.
maturity calendar for, 504.
Bonds, payment of, 506 ff.
premium on, 492 ff.
sale of, 409 ff.
serial, 484, 488, 489.
serial annuity, 484.
special assessment, 436 ff.
straight serial, 484.
term, 483, 488.
Bookkeeping, double entry, 188.
Borrowing for emergencies, 475.
for improvements, 472 ff.
in anticipation of income, 470 ff.
long term, 483 ff.
margin, 174.
ordinances, 50.
policy, factors influencing the, 476 ff.
short term, 480 ff.
Borrowings contrasted with revenues, 73.
Boston, Mass., budget commissioner, 89.
budget restrictions on council, 99.
city planning, 54.
expenditure estimate forms, 78.
financial organization, 14.
municipal pension systems, 259, 264, 265.
unicameral council, 95.
Bridgeport, Conn., cost of sinking fund administration, 488.
Bruère, Henry, cited, 461.
Bryce, James, cited, 4 n.
Budget, 31 ff.
bills to authorize, 44 ff.
character of information, 55 ff.
classification of information, 59 ff.
consideration and action by council, 95 ff.
definition of, 32.
estimates, 77 ff.
estimates and supporting data, 77 ff.
exhibits, 99.
expenditure classification, 59 ff.
form and contents of, 34 ff.
general summary, 36.
income classification, 71 ff.
legal authority for, 33.
long-time financial programs, 51 ff.
message, 35.
procedure, 32, 87 ff.
publicity, 99.
speech, 98.
staff agency, 89.
supporting schedules, 38.
Budget making authority, 35, 44, 87 ff.

Budgetary control, 101 ff.
methods of, 104 ff.
practices that tend to defeat, 101 ff.
procedure for, 32 ff.
Buffalo, N. Y., assessments for general taxes and for benefits made by one body, 424.
building record sheet, 338 ff.
financial organization, 13.
preparation of tax rolls and bill, 317.
school finances, 29 ff.
separate depth curves for business and residential property, 346.
tax liens, 302.
Building record sheet, Buffalo, N. Y., 338 ff.
Buildings, factors affecting value of, 312 ff.
records of, for assessors, 337 ff.
sources of information on, 325 ff.
value units of, 369 ff.
valuing in Gary, Ind., 340 ff.
Bureau of control and accounts, 21.
of purchasing, 24.
of taxation, 23.
of the treasury, 23.
Bureaus of municipal research, 6.
Business taxes, 443 ff.

Cambridge, Mass., separate depth curves for business and residential property, 346.
unit foot, 350.
Camden, N. J., corner rule, 360.
land value unit in, 347 ff.
Capes, W. P., cited, 29 n.
Cash available, 149.
Cash basis of reporting, 163.
Cashbook, 184.
Cash, daily balancing of, 293.
daily depositing of, 293.
petty, 294.
Centralized financial organization, 13 ff.
Centralized purchasing, 266 ff.
Character of budget information, 55 ff.
Character of classification, 67.
Charges for utility services, 533 ff.
Charleston, S. C., chart of organization of city government, 243.
division of employment, 27.
interest on deposits, 462.
license taxes, 448.
special assessments for sewers, 408.
tax liens, 302.
Charts, 228 ff.
bar, 228.
circle or pie, 240.
curve or line, 230.
hundred per cent bar, 241.
organization and procedure, 241.
ratio or logarithmic, 235.
Charts and graphs, in budget, 43.
Checks, when acceptable, 293.
Chicago, Ill., classification of employees, 250.
depositories, 303.
financing water meters, 517 n.
interest on deposits, 462.
Martin corner rule, 357 ff.
Martin rule for valuation of lots, 348 ff.
municipal pension system, 259, 261.
preparation of the budget, 89.
Cincinnati, O., assessment of off-grade lots, 367.
business taxes, 447.
city planning, 54 n.
cost of sinking fund administration, 488.
excess condemnation proposed, 469 n.
interest on deposits, 462.
occupational licenses, 446.
separate depth curves for business and residential property, 346.
Circle charts, 240.
City planning, 54.
Civil service, 246 ff.
Claimants' ledger, 133.
Claim forms, 131 ff.
Classification of budget and accounting information, 59 ff.
character, 67.
expenditure, 59 ff.
functional, 59.
fund, 67 ff.
income, 71 ff.
object, 61.
organization unit, 61.
Classification of employees, 249 ff.
Chicago type, 250.
New York type, 250.
Cleveland, O., classification of buildings, 373.
corner rule, 357 ff., 361.
council chosen by proportional representation, 96.
financial organization, 16.
interest on deposits, 462.
land value maps, 354.
open discussion in council, 97.
sinking fund commission, 25.

Cleveland, O., Somers depth curve, 348 ff.
Zangerle corner rule, 357 ff., 361.
Continuing appropriations, 48 ff.
Collection of property taxes, 294 ff.
of special assessments, 435 ff.
Collection procedure, 289 ff.
Collections, daily reports of, 124.
Colorado, special assessment decision, 404.
Commodities, defined, 64.
Commodity cards, 275.
Concessions, defined, 73.
Conditions of employment, 255 ff.
Confirmation of special assessments, 434 ff.
Contracts for goods, 281 ff.
Contractural services, defined, 64.
Control and accounts, bureau of, 21.
Controllable costs, 211.
Controlled financial stationery, 123.
Controller, 19.
auditing officer, 111 ff.
chief accounting officer, 192.
control over cost accounts, 217.
purchasing procedure, part in, 271 ff.
receives appropriation ordinance, 99.
Controlling accounts, 189.
Consolidated fund balance sheet, 147 ff., 158.
Corner influence, 356 ff.
Corner lots, special assessments on, 422 ff.
valuation of, 356 ff.
Cost accounting, 193 ff.
analyses and units, 194 ff.
application to city units, 203 ff.
applied to city owned water supply, 204 ff.
applied to garbage removal and disposal, 207 ff.
applied to hospital service, 209 ff.
records, 211 ff.
relation to general accounting, 217.
Cost assessments, 390 ff.
Cost centers, 195.
Cost data, budget, 52.
Costs, direct and indirect, 199 ff.
Cost units, 200 ff.
Current assets and liabilities, detailed statements of, 169 ff.
Current audit, 21, 110.
facts to be established in, 112 ff.
of expenditures, 126 ff.
of payrolls, 136 ff.
of revenues and other receipts, 116 ff.
Current balance sheet, 167 ff.
Current charges, defined, 64.
Current expenses, defined, 67.
Current obligations, defined, 64.
Curve charts, 230 ff.
Cushman, R. E., cited, 468 n.
Custody of city funds, 303.
Cuyahoga County, O., procedure in apportioning benefit assesments, 423 n.

Daily time records, 137.
Darville-Johnson bond yield chart, 503 n.
Dayton, O., budget classification, 62.
Debt administration, 24, 470 ff.
Debt limits, 508 ff.
Debt payments, defined, 64.
rapidity of, 477 ff.
Debt redemption, management of, 503 ff.
Debt retirement for utilities, 530 ff.
Decentralized financial organization, 11 ff.
Deficit, 36, 147, 160.
Delinquent property taxes, 298 ff.
Delivery of goods, 284.
Denver, Colo., depth curves, 417.
Department of finance, 17 ff.
administration of municipal pension funds under, 25.
bureau of control and accounts in, 21.
bureau of purchasing in, 24.
bureau of taxation in, 23.
bureau of the treasury in, 23.
bureau organization of, 19.
debt administration and management under, 24.
director of, 18.
employment of personnel management in relation to, 26.
qualifications of officers in, 20.
Departmental revenues, 450 ff.
Departmentalization in cost analysis, 195.
Depreciation in municipally owned utilities, 525 ff.
accounting for, 179.
reserve for, 530 ff.
Depositories, selection of, 303.
Depth rules for land valuation, 344 ff.
Edgar Harper, 348 ff.
Hoffman-Neil, 348 ff.
separate for residential and business property, 346.
tables, 348 ff.

Depth rules for land valuation, used in special assessments, 417 ff., 423 ff.
Detail ledgers, 189 ff.
Detroit, Mich., budget officers, 89.
Bureau of Governmental Research, cited, 513 n.
city depositories, 303.
financial organization, 14.
interest on deposits, 462.
purchase of street railway, 512.
special assessments for transit system, 397, 512.
special assessments proposed for rapid transit construction, 515.
tax on city owned street railway, 533.
ten-year financial program, 52.
unicameral council, 95.
water costs, 538 n.
Dillon, John F., cited, 491 n.
Direct and indirect costs, 199 ff.
Director of finance, 18 ff.
Disbursement of city funds, 304 ff.
Discount on bonds, 492 ff.
Donations, 466 ff.
Double-frontage lots, valuation of, 365 ff.
Douglas, Paul H., cited, 513 n.

Efficiency ratings, 256.
Electric light and power rates, 541 ff.
Electric plants, line extensions, 521.
operating expenses, 524.
Electric railway fares, 544.
Emergency purchases, 274.
Employment, 26, 245 ff.
agency and extent of its supervision, 246 ff.
conditions of, 255 ff.
Encumbrances, file of, 128.
unliquidated, 148.
Endowment funds, 69.
investment of, 502.
England, special assessments for repair of dikes in Romney Marsh, 399, 406.
Equalization of assessments, 379.
Estimates, budget, 52, 77 ff.
consolidation, review and revision of, 92.
preparation of, 90.
public hearings on, 94.
when filed, 91.
Estimates of revenues, 85 ff.
Excess condemnation, 468 ff.
proceeds from, 76.
Executive allotments, 106 ff.
Expendable funds, 69.
Expenditure classification, 59 ff.
by character, 67.
by functions, 59.
by funds, 67 ff.
by objects, 61.
by organization units, 61.
classes defined, 64.
code, 66 ff.
Expenditure estimate blanks, 77 ff.
Expenditures, auditing control over, 126 ff.
claim forms and certifications, 131.
detailed statements of, 166.
in the budget, 36 ff.
purchases and contracts, 126.
special methods for payrolls, 136 ff.
Extension of tax rolls, 291, 317.
Extensions to utility systems, financing of, 519 ff.

Fensel, Alden C., formula for Hoffman-Neill rule, 348 ff.
irregular lot rule, 364.
Finance, department of, 17 ff.
Financial calendar, 108.
Financial laws, need for summary digest of, 116.
Financial organization, 8 ff.
centralized, 13 ff.
decentralized, 11 ff.
evolution of, 8.
types of, 10 ff.
Financial programs, long-time, 51 ff.
relation to city planning, 54.
relation to the budget, 51.
Financial reports, 144 ff.
annual publication of, 182.
frequency of reporting, 181.
Financial statements, in budget, 52.
Financing municipally owned utilities, 510 ff.
extensions to the system, 519.
purchase or construction of the system, 511 ff.
service connections, 516.
working capital, 518.
Fire protection service costs, 539.
Fiscal year, 91.
Fitzpatrick, E. A., cited, 49 n.
Fixed charges, defined, 67.
Flint, Mich., apportionment of benefit assessments, 418 ff., 421.
Forbes, Russell, cited, 268 n.
Form and contents of the budget, 34 ff.
Fort Worth, Tex., tax maps, 330 ff.
tax records, 290.
Franchises, defined, 73.
Functional classification, 59 ff.

Fund accounts, 187.
Fund cash accounts, 134.
Fund classification, 67 ff.
  by authority for establishment, 68.
  by availability for use, 68.
  by ownership, 68.
  by sources of increment, 71.
Fund resources, maintenance of, to pay bills, 108.
Funds, defined, 68.
  endowment, 69.
  expendable, 69.
  general, 69.
  sinking, 69.
  suspense, 69.
  working capital, 69.

Gary, Ind., valuing buildings in, 340 ff.
Gas plants, line extensions, 521.
  operating expenses, 524.
Gas rates, 540 ff.
General accounting and reporting, 143 ff.
General accounting records, detail ledgers, 189.
  general ledger, 185.
  ledgers, 185.
  registers, 184.
  system of, 183.
  vouchers, 183.
General bonded debt, statement of, 173.
General budget summary, 36.
General fund, 69.
General journal, 184.
Gifts, 466 ff.
Gladstone, William E., quoted, 31.
Graphic presentation, 226 ff.
  Joint Committee on Standards for, 226, 227.
  rules for, 227, 228.
Graphic statistics as applied to municipal finance, 218 ff.
Graphs, 218, 226 ff.
Gruenberg, F. P., cited, 462 n.

Harper, Edgar, depth curve, 348 ff.
Hazen, Allen, quoted, 517.
Highway privileges, 453 ff.
  enjoyed by abutters, 453.
  enjoyed by nonabutters, 456.
Hoffman-Neill, depth curve, 348 ff.
Hollerith system applied to cost accounting, 215.
Household effects, assessment of, 312, 314 ff., 374.
Houston, Tex., organization of assessor's office, 378.
Hundred per cent bar charts, 241.

Imprest cash system, 294.
Income classification, 71 ff.
  by collecting agencies, 71.
  by funds, 71.
  by sources, 71 ff.
Income from investments, 460 ff.
Income in the budget, 36 ff.
Indebtedness, gross, of cities, 3, 470 ff.
Indefinite appropriations, 48.
Independent audit, 21, 141.
Index numbers, 224 ff.
Indiana, local budgetary control, 33.
  municipal debt limit, 508.
  state board of accounts, budget classification, 63 n.
Inspection of goods, 284 ff.
Insurance atlases, 326.
Interest, 460 ff.
Interest payments, management of, 503 ff.
Investments, detailed statement of, 172.
  income from, 460 ff.
Investments ledger, 190.
Irregular lots, valuation of, 363 ff.

Kalamazoo, Mich., five-year improvement program, 53.
Kansas City, Mo., board of equalization, 23.
  interest on deposits, 462.
  personnel department, 26, 248.
  sinking fund commission, 25.
  special assessment decision, 412.
Karsten, Karl G., cited, 228 n.
Knoxville, Tenn., sinking fund board, 25.

Lancaster, L., cited, 508 n.
Land, alley lots, 364 ff.
  block and lot maps, 329 ff., 335 ff.
  corner lots, 356 ff.
  double-frontage lots, 365 ff.
  irregular lots, 363 ff.
  off-grade lots, 366 ff.
  rules for valuation, 348 ff.
  sources of information, 325 ff.
  special assessments levied against, 405.
  valuation of, 344 ff.
Land value maps, 353, 424 ff.
Land value units, 420, 424 ff.
Ledgers, 185 ff.
Legislative procedure in considering the budget, 96 ff.
Levies of special assessments, administrative procedure in, 426 ff.
  limitation of, 399 ff.

Levies of special assessments, of taxes, 306 ff.
time of, 432 ff.
Licenses, application for, 292.
defined, 73.
Lincoln, Neb., school finances, 29.
Line charts, 230 ff.
Little, Alden H., cited, 438 n.
Little Rock, Ark., business taxes, 447, 448.
occupational licenses, 446.
Logarithmic charts, 235 ff.
scale, 237.
Long and short lot rules, 348 ff.
for special assessments, 417.
Long Beach, Calif., royalties from oil, 465.
Louisville, Ky., cost of sinking fund administration, 488.
Lump-sum appropriations, 44 ff.
Lutz, H. L., cited, 474 n.

McQuillin, Eugene, cited, 398, 491 n.
quoted, 390 ff., 401, 404 ff.
Maps, block and lot, 329 ff.
city engineer as source of information on, 324 ff.
land value, 353 ff., 424 ff.
tax, 329 ff., 336.
topographical, need for, 332.
Market conditions and tendencies, 277 ff.
Martin corner rule in Chicago, 357 ff.
rule for valuation of lots, 348 ff.
Massachusetts, assessors' information, 323 ff.
municipal debt limits, 508.
personal property assessments, 374.
special assessment law, 396, 401, 404 ff., 438.
Maturity calendar for bonds, 504.
Mean, statistical, 221.
Median, statistical, 221, 222.
Merge point, rules for finding, 366.
Message, budget, 35.
Meter readings, 119.
Meters, financing of, 517.
installation and ownership of, 516 ff.
Methods of budgetary control, 104 ff.
executive allotments, 106.
frequent reports, 109.
lapsing unencumbered appropriation balances, 110.
maintenance of fund resources, 108.
work program, 104.
Michigan, special assessment decision, 404.
Milwaukee, Wis., board of estimate, 11.
municipal pension system, 259.
separate depth curves for business and residential property, 346.
Minneapolis, Minn., budget classification, 63.
Miscellaneous revenues, 440 ff.
Mitchell, John P., cited, 461.
Mode, statistical, 221, 222.
Montclair, N. J., budgetary control in public works department, 107 n.
Motor vehicles, assessment of, 342, 374.
Municipal activities financially independent of city authorities, 27 ff.
Municipal business, financial demands of, 2 ff.
Municipal finance, as a science, 3 ff.
significance of, 1 ff.
Municipal pensions, administration of, 25.

Nash, L. R., cited, 510 n., 521 n., 525 n., 526 n., 542 n.
National Industrial Conference Board, 2 n.
National Tax Association, business tax proposal, 449.
Newark, N. J., block and lot maps, 329 ff., 336.
corner rules, 357 ff.
cost of sinking fund administration, 488.
five-year financial program, 52.
organization of assessor's office, 378.
personal property records, 342 ff.
poll taxes, 443.
reproduction of block and lot map, 331.
rules for land valuation, 348 ff.
separate depth curves for business and residential property, 328, 346.
New Jersey, board of taxes and assessments, depth curve, 349 ff.
municipal finance code, 471, 476.
premium on bonds, 493.
special assessments for repairing, 399.
special assessments for sewers, 408.
special assessment law, 396 ff., 401.
tax appeals, 381 ff.
tax maps, 330 ff.

New Jersey, tax sale law, 299 ff.
tax sale procedure, 432 ff.
New Mexico, local budgetary control, 33.
New Orleans, La., assessors' information, 323.
funds without central supervision, 103.
limited budgetary control, 101.
no estimate forms, 77.
subsidized private agencies, 87.
tax rolls, 290.
New Rochelle, N. Y., corner rules for valuation of lots, 357 ff.
New York, seven per cent law, 509.
New York Bureau of Municipal Research, early budget work, 32 n.
five-year financial program for Newark, N. J., 52.
"standard classification," 62 n.
New York City, apportionment of benefit asessments, 400.
area of benefit maps, 410 ff., 425 ff.
board of estimate and apportionment, 11, 89.
budget director, 89.
budget exhibit, 100.
budget hearings, 94.
city planning, 54.
classification of employees, 250.
"cost data" budget, 58.
current budget demands, 2.
depositories, 303, 304.
depth curve, 348.
division of assessing duties in, 378 ff.
employees and compensation, 245.
extravagant assessable improvements, 401.
field books, 328.
form of budget, 35.
Hoffman-Neill curve used, 348, 364.
interest on deposits, 461.
land value maps, 354 ff.
municipal pension system, 259, 261, 262, 264, 265.
municipal radio station, 100.
pension board, 25.
service ratings of employees, 256.
short term loans, 472.
special assessments for parks and playgrounds, 397, 409 ff.
special assessments for Sixth Avenue extension, 408 ff.
teachers' retirement fund bankrupt, 262.
Tweed ring, 4.
Nonoperating costs, 205, 207.
Norfolk, Va., financial organization, 12.
Norwood-Baker case, *re* benefit assessments, 390 ff.

Oakey, Francis, cited, 74 n., 175 n., 494 n.
Object classification, 61 ff.
Obligations and surplus, 154 ff.
Obsolescence, in building values, 312, 370 ff.
Occupation taxes, 443 ff.
Off-grade lots, valuation of, 366 ff.
Ohio, municipal debt retirement, 478.
Operating costs, 204, 205, 207.
Operating expenses of utilities, 523 ff.
Operation statement for municipally owned utilities, 178 ff.
Operative divisions, cost analysis by, 196 ff.
Order register, 129.
Organization and working units, cost analysis by, 195 ff.
Organization charts, 241 ff.
Organization unit classification, 61.
Ormond, William C., quoted, 416.

Passage of budget bills, 98.
Pay-as-you-go policy, 474.
Pay-checks, 140.
Pay master, 305.
Payment of bonds, 506 ff.
Payroll bank account, 305.
Payroll document, 138 ff.
Payrolls, bank accounts for, 140.
dates for, 139.
special methods for auditing, 136 ff.
Pension funds, 264 ff.
Pensions, administration of, 263 ff.
age limits, 259 ff.
allowance of benefits, 262 ff.
contributory, 260 ff.
medical boards for, 264.
municipal employees, 258 ff.
noncontributory, 260.
reserve funds, 264 ff.
sound financial basis, 260 ff.
Periodic audit, 22, 110, 141.
Permanent properties, statement of, 174 ff.
Permits, applications for, 292.
defined, 73.
Personal property, assessment of, 314 ff., 341 ff., 374 ff.
records, 341 ff.
sources of information, 325 ff.
unit values, 374.
Personal services, defined, 64.

Personnel supervision, 26, 245 ff.
Philadelphia, Pa., depositories, 303, 304.
financial organization, 12.
gas ring, 4.
interest on deposits, 461.
Pie charts, 240.
Pittenger, B. F., cited, 28 n.
Pittsburgh, Pa., unicameral council, 95.
Plottage, in land valuation, 367 ff.
Poll taxes, 442 ff.
Practices that tend to defeat budgetary control, 101 ff.
additional or supplementary appropriations, 102.
funds and appropriations not under the budget, 103.
overexpenditure of appropriations, 102.
Premium on bonds, 492 ff.
Price trends, 279.
Private funds, defined, 68.
separately reported upon, 182.
Probst, J. B., cited, 253 n.
Procedure charts, 241 ff.
Properties, defined, 64.
Property ledger, 190.
Property taxes, collection of, 294 ff.
delinquent, 298 ff.
Proposals for bids, 277.
Proprietary accounts, 187.
Public funds, defined, 68.
Public hearings on budget, 94, 97.
Purchase estimates, 275.
Purchase orders, 271, 283.
Purchase record cards, 271, 275.
Purchase requirements, 275,
Purchases, cost analysis by, 198 ff.
Purchasing, 266 ff.
agent, 269.
awards and contracts, 281 ff.
centralized, 267 ff.
negotiations, 281 ff.
organization of agency for, 268.
procedure, 270 ff.
requirements, 275 ff.
Purchasing agent, 19, 268 ff.
Purchasing, bureau of, 24, 268.

Rates for utilities, factors in making, 534 ff.
forms of, 536 ff.
Ratio charts, 235 ff.
Ratios, 222 ff.
Raymond, W. G., cited, 510 n., 519 n., 541 n.
Real estate, assessment of, 313 ff., 343 ff.
atlases, 326.
sources of information, 327.
Rebates, 164.
Receipts, accruals of, 117 ff.
auditing control over, 116 ff.
Records, assessment, 319 ff., 329.
building, 337 ff.
personal property, 341 ff.
separate for land, 328 ff.
systems of, 327 ff.
Refunds, 163.
Registers, 184.
Reimbursements, 164.
Rejection of goods, 285.
Renewals in utilities, 525 ff.
Rents, 73, 463 ff.
Requisitions for purchases, 271.
Reserves, 155.
Resources, 151.
Resources and obligations, 154.
Revenue appropriations, 48.
bills, 50.
classification, 72.
estimates, 88.
ledger, 189.
Revenues, auditing control over, 116 ff.
accruals of, 117 ff.
defined, 73.
departmental, 450 ff.
detailed statement of, 165.
miscellaneous, 440 ff.
sales of services and commodities, 451.
state administered, 441.
Revolving funds, 69.
Riggleman, John R., cited, 228 n.
Riggs, Henry E., cited, 526 n.
Rightor, C. E., cited, 52n.
Rochester Bureau of Municipal Research, cited on water costs, 538 n.
Rochester, N. Y., short term loans, 472.
Royalties, 465 ff.
defined, 73.

Saint Louis, Mo., board of estimate, 11.
interest on deposits, 462.
Saint Paul, Minn., adjustment of salaries to cost of living, 253 n.
Somers corner rule first used in, 360.
Sales of properties, 73.
Salvage of goods, 286.

San Francisco, Calif., budget not complete, 43.
financial organization, 11.
municipal pension system, 259, 261.
purchase of street railway, 512.
special assessments for Twin Peaks tunnel, 397, 514.
special assesments used to finance street railway construction, 514.
School finances, 27 ff.
Seattle, Wash., depth curve used in special assessments, 417.
purchase of street railway, 513, 514.
Segregated appropriations, 44 ff.
Selection of employees, 254 ff.
Seligman, E. R. A., cited, 444 n.
Serial bonds, 484, 488, 489.
Service connections, 516.
Service record, 258.
Service standards and ratings, 256.
Services, contractual, 64.
personal, 64.
Seven per cent law of New York, 509.
Sick leave, 257 ff.
Simpson, John, cited, 422 n.
Sinking funds, 495 ff.
contributions to, 496 ff.
defined, 69.
investment of, 499 ff.
Smith, W. H., cited, 228 n.
Soliciting and receiving bids, 279 ff.
Somers, W. A., corner rule, 357, 359 ff.
depth curve, 348 ff.
plan for establishing relative unit values, 352.
Sources of information for assessors, 321 ff.
affidavits relative to true considerations, 327.
building inspector, 325 ff.
city engineer, 324 ff.
county recorder, 321 ff.
South Carolina, special assessment, amendments to constitution, 394.
Special assessment ledger, 190.
Special assessment rolls, 117.
Special assessments, 384 ff.
administrative procedure, 426 ff., 438.
appeals, 439.
applied to financing street railways, 514 ff., 521.
apportionment of, 392 ff., 405 ff., 418 ff.
Special assessments, as revenues, 74.
benefit assessments, 390 ff., 398 ff., 403 ff., 405 ff.
bonds, 436 ff.
collection of, 435 ff.
confirmation of, 434 ff.
costs defined, 402 ff.
for abatement of nuisances, 385 ff., 392 ff.
for current services, 397 ff.
for fire fighting, 397.
for lighting, 397.
for local improvements, 387 ff.
for parks and playgrounds, 397, 401 ff.
for paving, 403, 407, 414 ff., 419, 421 ff.
for public improvements, 395 ff.
for reimprovements, 398 ff.
for sewage disposal plants, 393.
for sewers, 385 ff., 393, 407, 436.
for sidewalks, 385 ff., 407, 412, 436.
for snow removal, 397 ff.
for storm sewers, 392.
for street intersections, 403.
for streets, 387 ff., 401, 408 ff., 436.
for subways, 434.
for transit systems, 397, 410 ff., 512.
for water mains, 407.
levied against land, 405.
limitation of levies of, 399 ff.
limitations on use of, 393 ff.
methods of distributing according to benefits conferred, 416 ff.
on corner lots, 422.
rolls, 434 ff., 439.
types of, 385 ff.
types of property subject to, 405.
Special funds, 69.
Special mill levies, 48, 70.
Speech, budget, 98.
Spoils system, 246.
Springfield, Mass., budget exhibit, 100.
Square foot, unit foot of land valuation, 350.
Standard costs, 203.
Standard working hours, 257.
Standardization of goods, 275 ff.
of salaries, 252 ff.
Standards of taxable value, 310.
State administered revenues, 441.
Statement of operations, 158.
Statistical averages, 221 ff.
Statistical ratios, 222 ff.

Stoner, J. Ben., rules for corner values, 360.
Stores, inventory, 275.
ledger, 190.
organization, 269, 285.
procedure, 274.
statement of, 176 ff.
Straight line method of arriving at accrued depreciation, 529 ff.
Street railways, extensions of, 521.
fares, 544.
operating expenses, 525.
purchase of, 512 ff.
Subsidized private agencies, 86.
Subventions, 441 ff.
Summary statement of fund resources, obligations and surplus, 147 ff.
a consolidated fund balance sheet, 157.
Summary statement of income and expenditures of each fund, 158 ff.
a statement of operations, 158.
Supplementary appropriations, 102.
Supporting expenditure data to estimates, 82 ff.
Supporting schedules to budget, 38 ff.
Surplus, 36, 147, 160.
Suspense funds, 69.
Suspension and removal of employees, 257.
Swan, Herbert S., cited, 55 n.
Sworn property lists, 317 ff., 342.

Tables for land valuation, 348 ff.
Tabular presentation of data, 219 ff.
Tax-and-borrow policy, 473 ff.
Tax bills, 121 ff.
payments in installments, 296.
preparation of, 289 ff., 317.
submission of, 295.
Tax discounts, 296.
Tax dollar charts, 240.
Tax levy, laying of, 50.
Tax liens, 298.
effect on overlapping jurisdictions, 302.
enforcement of, 299 ff.
Tax maps, 329 ff.
changes in, 336.
Tax rate, 306 ff.
Tax records, 318, 327 ff., 329.
for buildings, 337 ff.
for personal property, 341.
Tax returns, audit of, 118.
Tax rolls, 117, 316 ff., 328.
extension of, 291, 317.
preparation of, 289.
Tax sales, 299 ff.
procedure in New Jersey, 432 ff.
Taxable property, collection of information concerning, 316 ff.
types of, 314 ff.
Taxable values, 310 ff.
definition of, 313 ff.
Taxation, bureau of, 23.
Taxes, abatement of, 125.
annulment of, 297.
as revenues, 73.
business, 443.
collection of, 294 ff.
defined, 73.
general property, 306 ff.
levy of, 306.
occupation, 443.
poll, 442.
regulatory, 45.
revenue producing, 446.
Taxing public utility property, 532 ff.
Toledo, O., financial organization, 15.
sinking fund commissioners, 25.
Toronto, Can., purchase of street railway, 513 ff.
Transfers between funds, 162.
Transfers of appropriations, 109.
Transit systems financed by special assessments, 397, 410 ff., 512 ff
Treasurer, 19, 287 ff.
disbursement procedure, 304.
functions of, 287 ff.
report cash receipts, 192.
Treasury, bureau of the, 23, 287.
functions, 287 ff.
management, 287 ff.
Trend lines, 235, 237.
Trial balance, 187, 189.
Tweed ring in New York City, 4.

Uncontrollable costs, 211.
Underassessments, 310, 377.
Unencumbered appropriation balances, lapsing of, 110.
Uniform accounting systems for municipalities, 144.
Uniform pay periods, 139.
Unit system of assessment, 343 ff.
for buildings, 369 ff.
for land, 344 ff.
for personal property, 374.
U. S. Bureau of the Budget, standardization of government contracts, 282.
U. S. Bureau of the Census, classification of special assessments, 75.
financial statistics, 60, 71 n.
rules for interpretation of accounts, 144.

U. S. Bureau of Standards, 276, 276 n.
Unliquidated encumbrances, 148.
Utilities, acquisition and extension, 510 ff.
  charges for services, 533 ff.
  debt retirement, 530 ff.
  depreciation and renewals, 525 ff.
  depreciation reserve, 530 ff.
  earnings, 522 ff.
  extensions, 519.
  municipal ownership, 510.
  operating expenses, 523 ff.
  purchase or construction, 511 ff.
  rate making, 534 ff.
  service connections, 516.
  taxing property, 532.
  working capital, 518.

Vacations for employees, 257 ff.
Valuation, alley lots, 364 ff.
  corner lots, 356 ff.
  double frontage lots, 365 ff.
  irregular lots, 363 ff.
  land, 343 ff.
  off-grade lots, 366 ff.
  rules for, 348 ff.
Value, units, buildings, 369 ff.
  land, 344 ff., 420, 424 ff.
  personal property, 374.
Virginia, constitutional limitations on special assessments, 394.
Volume diagrams, 238 ff.
Vouchers, 183.
Voucher-warrant-checks, 135, 304, 305.

Washington, D. C., allotment system, 106 n.
  rule for land valuation, 349 ff.
Water rates, 538 ff.
Water systems, line extensions, 520.
  operating expenses, 523.
Wilcox, Delos F., cited, 526 n.
Williams, F. B., cited, 468 n.
Worcester, Mass., excess condemnation used, 468.
Work program, 84, 104.
Working capital for utilities, 518.
Working capital funds, 69.

Yonkers, N. Y., block and lot map prepared by, 335 ff.
  overexpenditure of appropriations, 102.

Zangerle, John A., cited, 423.
  classification of buildings, 373.
  corner rule in Cleveland, 357 ff., 361.

27134

Date Due

F 17			
Mr 7			
Mr 19			
Ap 12			
My 17			

HJ9105
.B8

ST. OLAF COLLEGE
HJ9105 .B8
Buck, Arthur [illegible] Municipal finance, by A.E. Buck,
3 0111 00195 7587